ENVIRONMENTAL ASSESSMENT BOARD

Ontario

ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 71

DATE: Tuesday, October 8, 1991

BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act, R.S.O. 1980, c. 140, as amended, and Regulations thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro consisting of a program in respect of activities associated with meeting future electricity requirements in Ontario.

Held on the 5th Floor, 2200 Yonge Street, Toronto, Ontario, on Tuesday, the 8th day of October, 1991, commencing at 10:00 a.m.

VOLUME 71

B E F O R E :

THE HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

S T A F F :

MR. M. HARPUR	Board Counsel
MR. R. NUNN	Counsel/Manager, Information Systems
MS. C. MARTIN	Administrative Coordinator
MS. G. MORRISON	Executive Coordinator

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L I S T o f E X H I B I T S

L I S T o f U N D E R T A K I N G S

---Upon commencing at 10:05 a.m.

THE REGISTRAR: Please come to order. This hearing is now in session. Please be seated.

THE CHAIRMAN: Mr. Shepherd.

MR. SHEPHERD: Mr. Chairman, both Mr. Campbell and I have some administrative matters to attend to this morning. I got to go first.

I should say thank you to Mr. Campbell for providing us with the revised numbers for the February system incremental costs by about 5:30 last night, it was quite good and, as a result, we are filing and have provided to the Clerk a revised Exhibit 328 which is that set of numbers, and I believe copies have been provided to the panel.

Exhibit 330 had been based, in part, on 328, so we have now filed a revised Exhibit 330.

THE CHAIRMAN: We will just recycle the old one, I take it?

MR. SHEPHERD: They can find a permanent home, yes.

The third item is page 7 of Exhibit 326, the overheads, was taken from 330, so of course it now has to change, and we have provided that page, page 7 of Exhibit 326 to the Clerk to be inserted in place of the current page 7.

THE CHAIRMAN: Thank you.

MR. SHEPHERD: That's the overheads exhibit.

And, Mr. Campbell, I think has something to deal with.

MR. B. CAMPBELL: Mr. Chairman, just to record for the record that transcript Undertaking 322.6 has been filed, that's the cogeneration study, and so it has been filed and I have some extra copies. A copy, of course, has been provided to IPPSO to whom the undertaking was given, and I have some extra copies. If people would see me at the break, I can provide them if they are interested.

Secondly, I want to speak to my famous undertaking, at least it's famous because I'm taking a lot of ribbing about having given an undertaking, or volunteering an undertaking which, as you know, is something I swore I would never do.

However, having done it, I got an initial set of numbers yesterday from Mr. Brown and once I had understood what those were, I went away last evening and have drawn up what I think is a table that will work through these numbers from beginning to end.

Mr. Shepherd was kind enough to take a few moments to go over my rather indecipherable scrawls

this morning and we think this method of working through the numbers would be helpful to the Board and will clarify what I can confirm is some confusion on the record.

You'll recall when I gave the undertaking that my perception had been that people who were asking questions, including the panel members, were asking them from one perspective and they were being answered cutting the numbers a different way, and I think we have a table that's going to sort all of this out at this point.

As I say, I talked to my friend Mr. Shepherd about it. I hope to have that table prepared by the noon break and then what Mr. Shepherd and I suggest to you is that following the noon break, first thing this afternoon, I just take Mr. Brown through the table and I think it will show where all the numbers come from.

In many of these numbers, there are numbers that have been netted out and this and that. We are taking out all the rounding, we're giving the precise numbers, and I think then they can be added up whatever way one wants, depending on what perspective one brings to it, and I hope this will help with this matter.

So with the Board's permission, that is how Mr. Shepherd and I suggest we deal with my undertaking.

THE CHAIRMAN: That will be satisfactory.

I should also say that we have to stop today at 4:30, so that we should keep that in mind.

MR. B. CAMPBELL: All right. And I will try to make sure that before I sit down with Mr. Brown and finalize this table at lunch, I will make sure that Mr. Shepherd is at least given a copy in draft at that point so that he won't see it for the first time at 2:30. Maybe that will help a little bit, save some time this afternoon.

We may make some wording changes and stuff over the lunch, but I don't think it will be any more significant than that because I've been through the numbers with him already.

KEITH DOUGLAS BROWN
FRANK VYROSTKO,
JOHN KENNETH SNELSON; Resumed

THE CHAIRMAN: Mr. Shepherd.

MR. SHEPHERD: Thank you, Mr. Chairman.

CROSS-EXAMINATION BY MR. SHEPHERD (cont'd):

Q. Mr. Vyrostko, when we left off yesterday we left our hypothetical developer negotiating with Ontario Hydro, and you recall that in

the example we were working on, avoided cost was 300 million, you've offered 275 million, the developer's first response has been - and this is by coincidence since he doesn't know the avoided cost - his first response has been to ask for 300 million, but your spreadsheet analysis says that the project should do fine at 275 million, of course, you don't have the real financial data on the project at that point.

So that's the stage we are at in the negotiations. What happens next?

MR. VYROSTKO: A. Typically the developer would now start to bring together some of the important elements of the project. For instance, until he has had a reasonably comfortable level of what the price offer is that he can live with, he is in no position to go out and start looking at gas and gas supply.

So now he can start discussing that side of the equation, the fuel supply, to see what those parameters are and how they impact on the final number, and he would probably be talking to his financiers as well now saying that, you know, this is roughly the number of dollars that he would be required to go after. So that he is now in a position to be able to respond more effectively to that offer that he put

forward.

What happens normally is that he, based on the offer that we've made to him, there may be some concerns he has with the cash stream based on how he sees his requirements going, and so depending on what his fuel contract might be, he might have to in fact negotiate a different type of pricing arrangement over a twenty year period or whatever the contract is to suit his gas contract and escalation.

So there are a lot of factors that now start to come together in terms of how does his overall cash stream tie in with all of his various contracts and how does that fit the payments that we sort of outlined for him initially. And based on that information, then the numbers may have to change.

Q. Okay. So he's done all that, and there's no change after all of that in his perception that he wants 300 million. Now what?

A. If, in fact, he says he can't do the project for less than 300 million, and through the information that we have from the proponent that the prices that he has on his equipment now are reasonably firm prices, and those are in line with basically industry standards, the fuel supply has been -- he's got a letter of intent, which is reasonably close to

being finalized and it reflects all of his points and all that, then we would say that we would pay him $300 million.

Q. Now, do you actually do an economic or a financial analysis of his project to see whether his statement that he can only do it for that much is true?

A. No, we don't.

Q. I guess I would have thought that all a developer needs to do is keep insisting he needs more, he needs more, he needs more until you finally stop making offers and he knows he's got avoided cost. Am I missing something there?

A. Well, yes. I think, as I said before, what the developer has to show is what his cost of the equipment is, he has to talk about his fuel supply contract, and he has to show something to us to suggest that the offer that he has received is not adequate.

And so, for instance, if the price of the equipment that he has given to us is out of line, we would, in fact, be identifying to him the fact that typically that's not the cost of that type of project or that type of equipment.

[10:15 a.m.]

THE CHAIRMAN: What don't you know at that point about his project in economic terms? You say you don't do an economic analysis, but what pieces don't you know?

MR. VYROSTKO: For instance, we really don't know the hard numbers of his financing. He may have shared some of that with us, he may not have. The fuel contract is the definitely not completed, so all we would know is letter of intent. We do not know what his rate of return is. We don't know what the application and what equipment he is expecting to get on Class 34, we wouldn't know any of that.

THE CHAIRMAN: You don't know about Class 34?

MR. VYROSTKO: No.

In our model, we put some numbers into our model if it's a cogen projects, but whether his actual project ties into that or not, we don't know that.

MR. SHEPHERD: Q. Well, Mr. Vyrostko, you know the cost of the equipment; right?

MR. VYROSTKO: A. We know what he may have given to us, that's correct.

Q. Well, you have asked for it to be firmed up, right, so you have seen that it's a firm

price?

A. No, we have asked him to firm that up, so that when he gets the offer from us and if he comes back and he says I need $300 million, what we would be asking him to do is confirm through firm price quotes or otherwise, confirm to himself that that is in fact what he needs. Now, if he comes back and he says that's what he needs and we believe that in fact that reflects the circumstance, then that's as far as we go.

Q. You just said a minute ago that he is going to have to demonstrate to you that he needs the 300 million; right? Isn't that what you just said a minute ago?

A. Somehow he has to demonstrate that, yes.

Q. How he is going to demonstrate that to you without providing you with financial information to show that the project can't make a profit without getting the 300 million?

A. If, for instance, all of the numbers that he has provided to us are industry average numbers, then to us that would suggest that that's not out of line with the equipment that's necessary. And so, therefore, we would be satisfied that that project is legitimate from his perspective.

Q. But, Mr. Vyrostko, we said in this hypothetical, you have done your economic analysis on the 275, you do your economic analysis when you make your offer using industry average numbers; right?

A. Generally speaking, yes.

Q. So you have done that and you have concluded that on those numbers he can accept 275. So why would you believe him when he says 300?

A. I don't believe that's what I said yesterday. In fact, I think what we were saying is, if the value of the project is 300 and we would offer 275, I think that's what the scenario was that you put together. So I know from our numbers that the value of the project is 300 million and we have offered 275. And so now the question is, if he can in fact show that he needs the 300 million, then we can afford to pay the 300 million and he will get the 300 million.

Q. Maybe I misunderstood you yesterday. I thought you said if you make an offer like 275, you decide on that offer on the basis of a generic economic analysis; that is, you use assumed numbers to determine what sort of number can the project bear; isn't that what you said?

A. No. The offer itself is based on the value of the project to Ontario Hydro. The value of

the project is the $300 million. Now, the offer that we would put on the table would be an offer somewhat less than that, depending on the type of project. And so in the example you used yesterday, the offer we put on the table was 275 million.

Q. So, you just pick a number lower than avoided cost and offer that?

A. Could be. In some cases it might be just that.

Q. You have no rationale for the number you pick?

A. The rationale would be based on our spreadsheet.

Q. And that's the economic analysis; right?

A. That could be one of the economic analyses, yes.

DR. CONNELL: Mr. Shepherd, I wonder if I could ask a couple of questions.

MR. SHEPHERD: Please do, I'm lost.

DR. CONNELL: Mr. Vyrostko, I think it would help me to understand your response to Mr. Shepherd if I could ask you a question or two about Exhibit 83, the spreadsheet Table A3.7, which may have some corrections in it, but in any case, I don't think

I am interested in detail, just the principles.

As I understand this spreadsheet, it deals with a cogen project, 85 per cent steam capacity factor. The total cost in current dollars is given as 57,681,000. And in fact it's shown as a total equity proposal; is that correct? There is no debt involved in this?

MR. BROWN: In this example that's true, yes.

DR. CONNELL: And the internal rate of return, looking at the twenty year model, is given as 17.07 per cent at the bottom.

MR. BROWN: That's before tax, yes.

DR. CONNELL: Yes. And the return on equity is given as 13.3. So the only difference between the IRR and the RoE is the tax position; is that correct?

MR. BROWN: That's correct.

DR. CONNELL: Could I infer from this, if this were done partly on equity and partly on debt, that as long as you could borrow at a rate better than 13.3 per cent, you could manage very well on part equity part debt?

MR. BROWN: Definitely the financing will increase the return on equity to some number well above

13, probably 20. It's a function of how much debt and obviously the interest rate of that debt.

DR. CONNELL: Right. And given the cash flows shown on the extreme right, there clearly would be no problems with debt coverage. When you are into the fourth year you are already showing very healthy positive cash flow.

The great contributor to that, of course, is the Class 34. The middle column there, the CCA Class 34 shows the three year feature that we discussed earlier, which is clearly what gives the very high cash flow figures for those years. Without that C34 it would be quite a different looking spreadsheet.

Have you done the spreadsheet without Class 34?

MR. BROWN: Yes. It's in answer to an interrogatory.

DR. CONNELL: I would be interested in looking at that, perhaps you could give me the citation.

MR. BROWN: 5.24.14.

DR. CONNELL: Could we have that as an exhibit, Mr. Chairman?

THE CHAIRMAN: Yes.

THE REGISTRAR: What was that number,

please?

MR. BROWN: 5.24.14.

THE REGISTRAR: That will be 321.25.

---EXHIBIT NO. 321.25: Interrogatory No. 5.24.14.

MR. BROWN: In this particular interrogatory, the question was without Class 34 how much would you have to increase the purchase rate. So there is a change in the purchase side of that. It's not just a straight removal.

DR. CONNELL: Right.

MR. BROWN: Another example would be 5.14.214, which - I think it has already been exhibited - is the economics of a combined cycle with no cogeneration, so it would not have a Class 34.

[10:26 a.m.]

THE REGISTRAR: That was previously given 321.14.

THE CHAIRMAN: Thank you.

DR. CONNELL: Now, could I ask you, Mr. Brown, to look at Exhibit 143, and perhaps we could take a look at the second last table which is a supply curve for cogeneration?

I think my first question on this is simply, I would like to know where the rate of return data come from here.

Are these from your own spreadsheets?

MR. BROWN: Essentially, what we are trying to do is determine the steam capacity factor required to be economic. If you assume, as an example on this graph, that 10 per cent would be economic, then we know how many of the steam sites in Ontario would achieve that 10 per cent rate of return. It is more a relation between the steam capacity factor.

DR. CONNELL: So these are not the proponent's estimates of rates of return?

MR. BROWN: No, they are not.

DR. CONNELL: These are inferences that you draw yourselves?

MR. BROWN: That is correct.

DR. CONNELL: And can I ask you on what ground you came to the conclusion that a 10 per cent rate of return would be viable?

MR. BROWN: From what we have learned from the proponents, it is in the range of 15 to 25, depending on the proponent, what they are looking for.

And our sensitivity using debt has shown that if you get around 11 per cent rate of return without any financing, that the financing will increase you into the range 15 to 20.

In our next year's NUG plan, I want to

put a sensitivity graph in that shows the difference between the debt ratios.

DR. CONNELL: But I assumed that in this figure you were giving us pre-tax rates of return?

MR. BROWN: No. This is after tax but prefinancing.

DR. CONNELL: Oh, I see. Oh, that makes a difference. I think we should annotate the graph to that effect then.

THE CHAIRMAN: After taxes, did you say?

MR. BROWN: Yes, it is.

DR. CONNELL: Actually, I think I would like to take it a step further, if I may, and simply request an undertaking that you give us a little more detailed account of your assumptions about rate of return and the effect of various levels of debt equity and financing on returns on equity and viability of projects.

MR. BROWN: That could be done, yes.

THE CHAIRMAN: Number? This is an undertaking.

THE REGISTRAR: This was Undertaking 322.15.

THE CHAIRMAN: Thank you.

---UNDERTAKING NO. 322.15: Ontario Hydro undertakes to provide a more detailed account of their assumptions about rate of return and the effect of various levels of debt equity and financing on returns on equity and viability of projects.

DR. CONNELL: I am not sure that my intervention helps, Mr. Shepherd, but back to you now.

MR. SHEPHERD: Well, I couldn't have been more confused, so I must be less confused.

Q. Mr. Vyrostko, when you make your first rate offer, do you do a financial analysis of the project to determine the rate offer?

MR. VYROSTKO: A. We would run the project through our spreadsheet, our economic model, and using that, we would make an offer.

Q. Is your offer based on your economic analysis?

A. It would have some basis on the economic analysis.

Q. Okay. Now, if the developer requires more - still with avoided cost - am I right in assuming that that must mean that one or more of the assumptions in your economic analysis doesn't agree with his analysis?

A. That's correct.

Q. Do you require the developer to tell

you what that difference is?

A. Depending on the significance, yes, we would be looking for the developer to ...

Q. And then once you get that difference, do you rerun your economic analysis?

A. In some cases, we may.

Q. In what cases would you not?

A. If, in fact, the developer was able to show us that, in fact, the numbers that he was dealing with were still reasonable numbers with reasonable expectations and they supported the need for the full avoided cost for the project and we saw from that project that it, in fact, needed the 300 to go ahead.

Q. What if your conclusion after you get the developer's information is that it really only needs 285 to get the sort of rates of return that Mr. Brown is talking about and that the developer is just being greedy and asking for a higher rate of return, what do you do then?

A. Then that is a good deal that the developer got from us.

Q. So, then why do the economic analysis if you are just going to let the developer have whatever he asks for?

A. Because the economic analysis, whatever information we learn from that project would then go back into our model so that next time around it might be a better model, so that it then gives us a better indication of some of the important factors.

Q. Well, I understood you to say a minute ago, and maybe I will have to check the transcript later, but I understood you to say a minute ago that you would give the developer the $300 million if it is reasonable, right?

A. If the project requires the $300 million to go forward, then we would give the $300 million.

Q. And what does "requires" mean?

A. It is not economic otherwise.

Q. And what does "economic" mean?

A. Whatever the developer decides is economic from his perspective.

Q. Okay. So if he wants a 40 per cent return on equity, you don't care?

A. Well, again, I care if that 40 per cent is driven by some of the elements in the model, elements like capital cost or the fuel costs, the key elements that from our perspective seem to be out of line.

If the developer is asking for 40 per cent return and he believes he can get it with $300 million, then there must be some elements in his project that are very low cost.

And our model - we are using industry averages - would identify that and then we would be looking at those parts of the project that are, in fact, a major variance from his project and we would then be asking as to why that is necessary.

Q. Well, if all of the developer's costs and all of the information related to his project is identical to your industry averages, then, as I understand your evidence, he should get an appropriate rate of return at 275, right -- in the hypothetical we are talking about it, right?

A. Yes, I would think so.

Q. So if he asks for 300, he is asking for a higher rate of return, right?

A. Yes.

Q. With nothing more than that, all of his costs are the same as industry averages; he just wants more. That is okay with you?

A. Well, except that one of my responsibilities is to see if I can get a ratepayer benefit as well. And so the question then is, I am

also looking, from the developer, for something for the province, and so the question is: Am I able to get something for the province as well as him getting something for himself?

Q. Okay.

A. And then what we are trying to do is to find out where, in fact, we both can get something.

Q. Now, in the 275, he is already getting something for himself, right?

A. I don't know that.

Q. Well, didn't you do an economic analysis before you did the rate offer?

A. But that was strictly based on our information that we have and that information is strictly based on industry averages, so I don't know how that reflects his project.

Q. But we have just assumed that all his costs are industry averages, right?

A. Okay. If they are --

Q. So, he is getting something in this?

A. Yes, then he would be getting something.

Q. But he is asking for another 25 million?

A. Yes.

Q. All right. So, how do you convince the developer to give up some of that 25 million?

A. By asking him to show us why he needs the $300 million.

Q. Okay. And he shows you, and all it is, is he wants more rate of return.

A. Then we would be basically negotiating with him saying that we don't believe he needs that to make the project go.

Q. So you would just say you can't have 300 million, go away?

A. Possibly. It may be a situation where we may just say that and we don't think that is necessary to make that project go.

Q. Okay. Now, you said - I am going to ask you to look at the transcript for last Wednesday. It is Volume 68. And I am looking at two places, page 12309 and following, for a couple of pages, and then 12329 and the following page.

[10:35 a.m.]

I will give you a chance to read it in a second and you might recall this interchange. In the first of those, Dr. Connell asked you what the relevance is of rate of return in your negotiations, and then on 12329 the Chairman comes back and asks:

Well, is rate of return part of what you're looking at here? Aren't you concerned about that?

And in both cases you say: No, we don't care about rate of return at all, it's not relevant to us. And I thought I just heard you say now that if rate of return is out of line, that's critical to your negotiation; isn't that right?

A. I don't believe I said that. I said that if the project comes in at $300 million and the developer is asking for the full avoided cost, and our position is that we don't think he needs it, we would be asking him to justify why he needs it.

If the developer, for whatever the reason, said that he can't make that project happen without that return for him, then to make that project happen if it's a good project we'll pay that $300 million.

Q. When you say, if it's a good project, if it's met all of your tests so far it's a good project?

A. Yes, that's correct, yes.

Q. It sounds to me like you're caught a bit between a rock and a hard place, Mr. Vyrostko, in the sense that you can't turn down a project if you can get it for avoided cost or less, but as long as that's

known, then developers can just insist, insist, insist until you pay them full avoided cost, even if it's too much for their project.

A. I don't think that has happened in our case. I think the results to date have shown that we have been able to strike a fair deal between both the developer and ourselves, and so I think from that perspective it's been good for both industry and the province.

Q. Now, interestingly enough your average price is around 98 per cent of avoided cost I think you said?

A. I believe so, yes.

Q. So all of this pushing and shoving around is to get 2 per cent; right?

A. It's not just quite as simple as pushing around. Remember that one of the elements of the whole project is to try to assess and make tradeoffs on the risks and the benefits.

In many cases what you're doing is you're trading off some risk maybe for some benefit and part of that, that reflects the price as well.

Q. Is it fair to say that the only reason why Hydro can ever pay less than avoided cost, the only, in effect, leverage that you use is the fact

that the developer doesn't know the avoided cost and, therefore, can't insist on it; is that right?

A. I don't believe so.

Q. Well, if the developer knew avoided cost and knew that under your own internal rules you have to buy the project if it's avoided cost or less, isn't he just going to insist on avoided cost?

A. I don't believe so, because I think the developer is looking for a fair return on his project, and if he feels that he can lose a project by extending the argument to the ultimate degree, then he, in fact, may not have a project and so he could, in fact, be jeopardizing the project.

Q. How could he lose the project?

A. Well, for instance, if he all of a sudden was fighting for -- let's take the example of the $300 million and he was insisting that he'll walk away unless he gets $300 million, then -- well, in that case that wouldn't happen because we would offer $300 million. So that that's not a situation that would happen.

Q. In fact, if the developers knew what their avoided cost was, isn't it true you would always have to pay full avoided cost?

A. No. We've, in fact, already paid --

we have already shared what our full avoided cost is with developers; at the same time as they've shared all their financial --

THE CHAIRMAN: Do I understand that he would know that $300 million was your ceiling?

MR. VYROSTKO: Yes, we have done that with a number of projects because of the way we have to trade off some of the risks and benefits, and so to be able to, in some cases, be able to put all the risks benefits on the table, we've had to, in fact, divulge what our full avoided cost is, and at the same time the developer has divulged what return he's looking for as well.

MR. SHEPHERD: Q. Is this a tradeoff in the sense that when the developer gives you financial information you'll give the developer your avoided cost number?

MR. VYROSTKO: A. No. I think what we're saying here is that the two of us are trying to strike a deal and the question is what information do we need and how comfortable do we have to be with all that information to be able to strike that deal.

Q. So you have many situations in which you insist on financial information from developers, but you don't give up the avoided cost information in

return?

A. That's not true. In fact, what we would be doing is, if we are looking for information from a developer, he's probably looking for information from us as well.

Q. Well, I just asked a second ago when the developer gives you financial information do you give him the avoided cost, and I thought you said no?

A. No, I didn't. I said it depends on what circumstance it is. We have, in a number of cases, given the avoided cost.

Q. Okay. Now, in those cases where you've given the developer avoided cost, are those contracts, rate offers signed at avoided cost?

A. Maybe let's go back and talk about a real situation here. In most cases a project that comes in is never near avoided cost, it's always above avoided cost, and so what we are trying to do is with the cooperation of the developer is trying to, in fact, help that project through optimizing it to bring it down to avoided cost. So, in essence, it's always us trying to, in fact, see whether we can make that project happen at avoided cost.

Q. But your average is 98 per cent avoided cost?

A. That's because, as I mentioned before, we are picking some of the risks up in a lot of the projects in terms of gas price, reopeners and different things like that, and so when you do that you obviously have to get some benefit for that.

Q. Is it fair to say just -- let's just talk about this generically. Is it fair to say that that 2 per cent difference is, with a few insignificant differences, it is payments or price benefits that Hydro receives for taking risks?

A. I would say many of the contracts that we have are for that type of reflection.

Q. Do you think there's a significant proportion of that 2 per cent difference between avoided cost and price, is there a significant proportion of that that is something other than risk?

A. In some contracts none of it is more than risk, it's all risk.

Q. And on average or in overall, in aggregate.

A. I would suggest the majority would probably be on the risk side.

Q. Okay. I'll come back to that. You had a little exchange yesterday, I believe it was the Chairman who asked you a question about how Hydro works

or whether it's like other companies, and I guess I want to pursue that a little bit.

Is Hydro like large companies in the private sector in terms of its negotiating leverage, its powers, et cetera?

A. In some cases it is; in some cases it may not be.

Q. Can you give me some examples where it isn't like other companies in the private sector?

A. If it was buying 500 kV equipment, it's the only company in Ontario that buys 500 kV equipment, so it wouldn't be the same as any other private company.

Q. How about examples in the independent power area?

A. Like what?

Q. Well, Mr. Vyrostko, isn't it true that Hydro is a monopoly, it's the only purchaser of independent power in this province?

A. Yes.

Q. So isn't it true that the developer who wants to do a project has to make a deal with you or has to walk away; right?

A. That's correct.

Q. So that's not like private sector

companies; is it?

A. There are private sector companies that, on any given occasion, might be faced with the same situation.

Q. That have statutory monopolies?

A. No, they don't have statutory monopolies, but they would be negotiating for something that they want from a single company, single supplier.

Q. All right. All of this leads us to a discussion of standard offer contracts. Do you know what a standard offer contract is, Mr. Vyrostko?

A. In general terms I do.

Q. It's a term of art in independent power in the United States; isn't it?

A. A which?

Q. A term of art, a defined term, if you like?

A. I believe a number of utilities have used standard offers in the past.

Q. Okay. Let me just try this definition out for you, tell me whether you think this is a fair one to use for the purpose of this discussion.

Standard offer contracts are a series, or a menu of price and other financial terms that are

predetermined and the developer can choose from the menu but cannot negotiate away from it. Is that, in your experience, what standard offer contracts are like?

A. I wouldn't have categorized it as such, no. I believe that there are some standard offer contracts that are like that, but I believe there are other ones that don't have a menu, they're single based prices.

Q. Well, for example, I guess the most well-known ones are in California; right?

A. Yes.

Q. And there are four of them?

A. There were five I believe.

Q. Five. However many, and there are variations on them too; aren't there?

A. Just let me explain, the reason why I say five. There was an interim offer for it and there's just now standard offer for it. So, in fact, there were five.

Q. Okay. For projects under five megawatts you use standard offer contracts; don't you?

A. We do.

Q. And you have three different types?

A. We have three options, that's

correct. In fact, we have four options with 'at will'.

Q. Oh, that's true. Fair enough. And those contracts are set at 100 per cent of some average or generic avoided cost; right?

A. Yes, they are set at avoided cost.

Q. So there's no need to negotiate those contracts at all; is there?

A. That's correct.

Q. How did you come to set the break point at 5 megawatts?

A. We basically set the break point based on the break point we used for our sales customers; and, that is, we have large customers and small customers and we categorize large and small based on the 5 megawatt break point.

Q. Is there a logic in that number, an internal logic in the number, or is it just a convenient number?

A. No, I think there is couple of logics to it, one is typically over 5 megawatts would be classified as a larger customer, so the implications and the impact it has the system would be more directly related to the customer than to the smaller ones.

And then, secondly, from an accounting perspective, again because they have a larger impact,

then you price them out to reflect the unique impact that they have on the system as opposed to the general class customer.

Q. I assume that you have standard offer contracts for under 5 megawatt projects because it simplified and speeds up the contracting process; is that fair?

A. I believe I said that in direct evidence.

Q. It reduces your administrative costs?

A. I would think it reduces some of our costs.

Q. Does it result in reduced negotiating time?

A. That's correct.

Q. Do you think it reduces the time and expense to a developer to obtain a power purchase contract?

A. Depends. If it's a small hydro project, I think right now the time it takes to get permits and all that, it takes a lot longer than to get a power purchase agreement, so it depends on the type of project we're looking at.

Q. It's true; isn't it, that the amount of time and money that has to be spent on the power

purchase contract is far less when you have a standard offer contract; isn't it?

A. Yes, but then again the financial commitments and all that are much less as well, so I think they go hand in hand.

Q. Well, that's an interesting question. Do you think that having a standard offer contract helps small non-utility generators get financing? [10:50 a.m.]

A. Yes, it could.

Q. And you have designed it to be a financable contract; right?

A. I think the reason why they can get the financing is because there is some assurance of what the payments are going to be and therefore there is some knowledge of the returns and/or the cash streams to the developer.

Q. I take it you would get the same benefits of the standard offer system for a 5.1 megawatt project as you would for a 4.9 megawatt project?

A. At that little increment, I would have to say that's correct.

Q. Or a 6 megawatt project or a 10 megawatt project or 20 megawatts, wouldn't you get the

same benefits that we just talked about?

A. I would think though that as you get larger, there are more factors that come to bear on that project which can't be standardized because they are unique to the project and therefore you need some tailoring.

Q. Let me just ask, we will talk about those in a second, but it would reduce your administrative costs at 20 megawatts just the same as at 5; right?

A. Possibly.

Q. And it would reduce negotiating time?

A. Again, that depends on the project itself. In many cases if the developer can come in and put the project together for that price, then yes, it would because he would just walk in and do the project. However, in many cases there are a lot of factors that have to be considered, especially as you get to larger projects, and there it's not quite that simple.

Q. But that price is full avoided cost; right?

A. I'm sorry?

Q. That price in your under 5 megawatt is full avoided cost; right?

A. Yes, it is.

Q. So you can't offer anymore than that anyway, can you?

A. That's correct. If he wants to take advantage of no programs of ours and he wants to just take the project the way he puts it together, we will just offer him the standard rates, that's correct.

Q. Okay. And you could do the same thing at 20 megawatts with the same result; right?

A. Well, I don't know that. We really haven't looked at what the impact of looking at a 20 megawatt project would be.

Q. Or 50 or 100 or 200?

A. We haven't looked at that.

Q. Now, one of the things you mentioned is - and that maybe just alluded to - is that for over 5 megawatt projects you have the advantage that you can agree to have Hydro take additional business risks in return for a lower price; right?

A. That's one of the things that we can do with the project, yes.

Q. You couldn't do that with a standard offer contract; right?

A. Well, we could do with a standard -- no, we can't.

THE CHAIRMAN: Do you ever vary the terms

of a standard offer contract in less than 5 megawatts situations?

MR. VYROSTKO: No. The only thing that we would do is if a project under 5 megawatts wanted to have some different terms, then we would not provide the standard rates but in fact negotiate the rates.

THE CHAIRMAN: You treat them as a plus 5 megawatts?

MR. VYROSTKO: Yes.

THE CHAIRMAN: And negotiate as if they were over 5 megawatts?

MR. VYROSTKO: That's correct.

MR. SHEPHERD: Q. Just thinking about this conceptually for a moment, the smaller a project is, the less it looks like a project built by Hydro, right, technically and even physically?

MR. VYROSTKO: A. I believe Hydro has built some small hydro projects, if we are talking Hydro. So, I wouldn't say that it looks less like a Hydro project; it's a small project, that's all.

Q. Hydro isn't building any small hydro projects anymore, is it?

A. They are not proposing any small projects, that's correct.

Q. Okay. And if I were to look at a

series of 1 megawatt small hydro projects and I then looked at Nanticoke, I would see a big difference; wouldn't I?

A. It was just pointed out that in fact we do have a small project that would virtually be categorized like yours, and that's Lake Gibson.

Q. Okay. Is it true that as a project gets bigger, Hydro takes more and more of the risks, generally speaking?

A. For a private generator?

Q. Yes.

A. No.

Q. No? Is the opposite true?

A. The whole thrust of the private sector is that they would take the risks of the project.

Q. No, I am not comparing it to a Hydro-owned facility now. I am comparing the spectrum of independent power projects from the littlest ones to the biggest ones. Is it true that if you go from the littlest ones to the biggest ones, you look at the contracts of each, you are going to see the risks taken by Hydro increase as the project gets bigger; isn't that right?

A. No, I don't see that. Risks in each

of the individual contracts?

Q. Yes.

A. No, I wouldn't say that generally.

Q. Well, you don't take any risks at all in the under 5 meg; right?

A. That's on standard contract. For those with non-standard contracts, then we do take risks, we could take risks.

Q. There is not a whole lot of those, though.

A. There is a number of them.

Q. Isn't it true that the vast majority of under 5 megawatt are standard contract?

A. That's correct.

Q. And those have no risks to Hydro at all; right? All the risks are taken by the developer?

A. Well, in fact, if we looked at the large majority of these projects, those that are under 5 megs are, in fact, paying more than avoided cost. If you recall, we were paying at 85 per cent of the cost of power. So, from that perspective, Hydro takes a lot of the risk because we are paying more than we would for the other projects.

Q. That's interesting you should mention that. Isn't it true that you if you look at -- let's

say you look at a project that was signed up in '89, an under 5 megawatt project signed up at the standard rates in that year, and then you look at your today's avoided costs, right?

A. Yes.

Q. And the rates you will pay based on today's avoided cost, that '89 project is going to be paid a lot less today; isn't it?

A. I'm not sure if it's a lot less but it would be paid less.

Q. And in fact, that is consistently true for every old project; isn't that right? No exceptions.

A. That's correct.

Q. Okay. So, when you say they are being paid more than avoided cost, that's not true; is it?

A. They are being paid more than avoided cost when the contract was signed.

Q. But today we know that avoided cost isn't what you said it was two years ago; right?

A. But avoided costs change from time to time, and all we can do is go based on the information we have at hand.

Q. Okay.

MR. SNELSON: A. The point I would like to add here, Mr. Shepherd, is that with 20/20 hindsight it's easy to say that. But avoided cost goes both up and down, and we have had experience of avoided costs going down as well as up, but not in the last five years.

Q. You never had a non-utility generator pay more than avoided cost?

A. I defer to Mr. Vyrostko's comments about specific payments to hydraulic generators. I am only making the point that avoided cost can go down and has gone down. And so if you are paying more than avoided cost in one year, then looking forward you have no guarantee whatsoever that avoided cost in the future is going to rise. It could go down.

Q. In fact, I guess there could be some anticipation that after these hearings as the demand management kicks in and the NUGs that you have planned for kicked in, that the surpluses that are created will start to make avoided costs dive then, right?

A. I believe that Mr. Shalaby in discussing the trends of avoided cost with Dr. Connell on Monday morning, commented that there could be some reduction in avoided cost as a result of the larger targets and larger amounts of demand management and

NUGs being achieved and that would be more reflected in the planning values than in the project appraisal values. The project appraisal values will not be as affected as the planning values.

Q. Project appraisal values are calculated based on achieving a plan; right?

A. Project appraisal values are calculated partly on the situation if there was no demand management or NUGs beyond the committed amounts and partly on the situation of the plan being achieved. The planning values are entirely on the basis of the plan being achieved, and that's why the project appraisal values are less affected than the planning values.

Q. But once the NUG and DSM numbers are achieved, there are no project appraisal numbers, are there? There are only planning numbers. Isn't that the evidence we have been given several times?

A. The project appraisal values are for use for the amounts that are within the targeted amounts.

Q. Okay. And so once you get those amounts, project appraisal drops off the end; right?

A. At this point in time but there may be different targets and higher targets in the future.

So, that situation is an evolving thing.

Q. All right. Sorry, we ended up wandering off all over the place there. I will try to get back on track.

Do you have any idea, Mr. Vyrostko, what would happen if all your contracts were standard offer contracts?

MR. VYROSTKO: A. If all the projects that we had on the table that we negotiated were in fact standard offer contracts, based on our full avoided cost, I don't think we would have any one of them in existence right now.

Q. Because?

A. Because the project itself has changed significantly in most cases to fall within the avoided cost parameters.

Q. And you couldn't do that if you had a standard offer contract?

A. I don't think the proponents could do that, no.

Q. Why?

A. Because I think in many cases the proponents aren't aware of some of the critical elements of a project that in fact bring that project within avoided costs and how some of those key elements

of the project have impacts on the avoided cost.

Q. Well, you could just publish a formula; couldn't you? Hand them out spreadsheets so they could calculate it?

A. But again, all that does is that says, here is the formula, here is your capital cost, here is, let's say, your fuel cost. But now the question is, can the proponent go out there and get a fuel contract that in fact matches the standard offer. And can he in fact get the capital costs that match the capital costs in the model.

I guess what I am saying is that I think that in all cases it's not that easy to be able to expect every developer to follow all the same requirements for all different types of projects.

Q. I don't understand how that affects you. You don't go and get his capital costs or his fuel contract; do you?

A. No. But I think what we do is, that goes back to the negotiations. We can tailor the way we pay out the avoided cost to suit the financial agreements that he has, or we can change the way we pay out to match the fuel contract. So, those are --

Q. You could do that in a standard offer contract; couldn't you?

A. Not as far as I would understand a standard offer contract, no.

Q. Suppose your standard offer contract just said, here is your figure for avoided cost, here is the formula for calculating it, bang, you get a number, and here is the range in which you can get payments, it can be this high, it can be this low in any given year, and it has to have a net present value of this avoided cost number. You calculate it, Mr. Developer, go away, have a good time. You could do that; right?

A. I could do that.

Q. Yes.

A. I am not sure whether that would be easy to be done. I can't think of ways of covering off all the possibilities of project requirements to be able to do that.

Q. Tell us some possibilities you couldn't cover off.

A. I couldn't cover off the fuel costs in terms of the escalation, the starting price and the escalation associated with it.

Q. How is the fuel cost relevant to your contract?

A. The fuel cost in my contract, it's

very relevant to the developer. Depending on the type of project, you could be looking at 70 per cent of his costs is gas.

Q. But he has to do that anyway, no matter what rate you offer him; doesn't he?

A. No, but the important thing is to try to match the annual payments to that gas contract. So that you are not ending up paying too much at the front end and that's not enough for him to recover his gas costs, or vice versa.

Q. Well, there are two things, right? One is the structure of the payment stream whether it's escalating or levelized or adjusted in some way. And would you agree that you could set out a formula which simply says, here is your net present value, work out how you want to get it; you could do that, right?

A. Well, to me that's negotiating.

Q. Well, it's only negotiating if you have to approve it. If the rules are set out, then the developer just comes in and says, here is my number, here's how I want to pay, thank you very much; right? Doesn't have to talk to you at all, just write you a letter.

A. Yes. Except that in many cases as I said before, I am not sure if projects could in fact

materialize under that type of scenario.

Q. And the reason for that is?

A. Because I believe like right now here in Ontario our avoided costs are reasonably low compared to other jurisdictions, and it takes a lot of work on many parties to make projects happen.

[11:07 a.m.]

Q. Okay. Let's just split that up then.

Your avoided cost wouldn't change whether you had a standard offer contract or not, right?

A. That is correct.

Q. Okay. So, we are not talking about a price differential in how you do your contract, are we?

A. That's correct.

Q. All right. So then, do I understand you to be saying that the developers can't get their projects together, can't make them work, unless you help figure it out?

A. That's correct.

Q. And that is because you know the ins and outs of how to push this parameter and shove this parameter to make it fit within avoided cost?

A. I would say it is probably the fact that some developers may be doing a project for the first time and some of my staff have experienced many

contracts and, therefore, the experience that we have - going back to some of the questions you were asking yesterday - some of the experience we have is more than any of the developers and so we can assist the developer in bringing forward a good project.

Q. Of course if you had standard offer contracts, you could still do that, right? You could still say to the developer, well, if you would just connect a 230 kV instead of 115, you could make this work. Nothing is stopping you from doing that, is there?

A. No, but I think the other element here, too, is, we are trying to get a ratepayer benefit if we can and so, you know ...

Q. We will come back to the ratepayer benefit in a second.

The other thing you mentioned is risks, right?

A. Right.

Q. One of the flexibilities you get by having a negotiating process is you get to take risks, right?

A. We can take risks and get some benefits out of those risks.

Q. Okay. You don't do a study or an

actuarial analysis or anything on an individual project to assess the value of a risk, do you?

A. A generic risk, no. We strictly look at the value of a specific element of risk that we would be taking on.

Q. But for example, let's say you take 50 per cent of the fuel reopener risk, that is pretty common, right, up to a cap --

A. Well, there could be a cap of some type, yes.

Q. Okay. So, when you take that risk, you don't go out into the marketplace and get that risk valued. What you would have to pay to buy that protection from a third party, you don't do that?

A. No, we don't do that.

Q. Now, in a standard offer system, you could have a menu of risks that you will take and a price for them, couldn't you? You want us to take a fuel price, here is the formula for how much you have to pay for it?

A. You could do that, yes.

Q. And if you did that, then you could actually go out into the marketplace and you would have economies of scale, right? You could go out and actually do a proper study on what you should be paid

for that, right?

A. I am not sure if that would necessarily bring any additional value to the proponent and to ourselves.

Q. Why?

A. Again, as I said, I don't know why it would.

Q. If you went to standard offer contracts, wouldn't it be like the under 5 megawatt projects, the time and expense of getting a contract would be lower?

A. I can't say that. I don't know that.

Q. Well, I guess one of the things you have done to develop your own expertise is you have looked at the U.S. marketplace in the most advanced jurisdiction of the United States and what they are doing; is that correct?

A. Yes, I have.

Q. It is true that in California the standard offer system applies to projects of all sizes?

A. But are we saying that California is the most advanced state?

Q. That is not my question.

A. Well, I have looked at the States and for instance, there are very few that are using

standard offers. The majority of the United States are going to competitive bidding.

Q. We are going to come to competitive bidding in a minute. But assuming that you haven't gone to competitive bidding, everybody else uses standard offers, right?

A. That is not my information.

Q. Okay. You have some states that are using negotiated rates?

A. My information says that 36 states are using competitive bidding or are in the process of using competitive bidding.

Q. Okay. And I guess one of the things about standard offer contracts is that we wouldn't have to talk about secrecy or abuses of discretion or anything like that, would we, because everybody would know what everybody is getting? It would be right up on the tables; isn't that right?

A. That is correct, the information would be generally available.

Q. So there would be no question of fairness. Nobody could ever accuse you of being unfair?

A. I haven't thought anybody was accusing me of being unfair.

Q. Okay. You have never been accused of having a black list, Mr. Vyrostko?

A. A black list?

Q. It is a factual question. Have you been accused of having a black list or not?

A. I have not.

Q. Just one more question on standard offer contracts or series of questions, one very long question.

In Panel 3, we talked about the difference between treating environmental values as fixed and economic issues as variables, price, as opposed to fixing the economic values or the price and making the environmental issues the variables.

Do you understand the difference?

A. Somewhat.

Q. Let me give you an example. If you had standard rates and terms for all NUGs; you had a menu and formulas, everybody got the same deal, couldn't you still negotiate on environmental issues? If you really want to negotiate, couldn't you get environmental benefits out of a project instead of price benefits?

A. Right now our responsibility is not to negotiate the environmental benefits. Those

benefits are determined by the various regulations that are here within the province. And the proponent is responsible for those environmental regulations.

DR. CONNELL: Mr. Shepherd, do you have handy a transcript reference?

MR. SHEPHERD: For the Panel 3 discussion, no, but I will get it at the break, Dr. Connell.

DR. CONNELL: Thank you.

MR. SHEPHERD: Q. Let me go on to another part of this. I think it is the last little bit of the contracting process subject.

How long does it take right now, Mr. Vyrostko, for a NUG developer from the time it first approaches you with a project, first tells you about it, until you have reached a financial deal with them, on average?

MR. VYROSTKO: A. 12 to 18 months.

Q. Is it fair to say that you have many projects in which the time frame is two years or so?

A. We do have projects that have taken that long, but I guess I would also like to say though that the project that is being discussed now is nowhere near the same project that was discussed two years ago.

Q. Because of this process of changing

it around to get it within avoided cost?

A. To help the developer, in fact, make it a viable project, yes.

Q. When was the filing deadline for the RFP?

A. January of '90.

Q. The first filing deadline?

A. That was a preapplication; the formal proposal was January of '90.

Q. And when was the preapplication date?

A. September '89.

Q. August '89 perhaps?

A. September, August.

Q. Okay. So about two years ago?

A. But the preapplication really wasn't the requirement. It was a formal proposal. But the preapplication was in August of '89, that is correct.

Q. And for most projects, that is when you first heard about the project, right?

A. For some of them, yes.

Q. Some of them you had actually heard about them earlier and they were reapplying under the RFP, right?

A. Well, some of them didn't even apply with a formal proposal after they put in the

preapplication. So all those who put in the reapplication weren't necessarily in the formal proposal and vice versa.

Q. All right. The ones you are signing up this year, though, you first heard about them in August or September of '89, right?

A. Some of them.

Q. Okay. Now, how many of them have you got to rate deals so far out of that group?

A. I believe it is about five, five or six.

Q. Five. And you hope to have another five of them by the end of this year; isn't that what we heard, 10 projects for 1200 megawatts or something?

A. But they were not all of them out of the RFP.

Q. Oh. Some of them were subsequent?

A. Subsequent.

Q. Okay.

THE CHAIRMAN: When you say "rate deals", you mean committed; is that what you mean?

MR. VYROSTKO: Basically the price offers that have been accepted by both parties.

THE CHAIRMAN: But you wouldn't clarify those as committed, though?

MR. VYROSTKO: We would not consider that as committed yet unless the contract has been signed or, as we have said before, they have started construction or they have released some financing.

MR. SHEPHERD: Q. Okay. Now, you said 12 to 18 months is the range for getting rate deals, right?

MR. VYROSTKO: A. Yes.

Q. So 12 months after August '89 is August '90. And can you tell us how many of the projects you heard about first in August '89 you had rate deals in August '90?

A. What do you mean by "a rate deal"?

Q. Sorry, an accepted rate offer, what we just talked about.

The answer is none, isn't it?

A. I believe we had three.

Q. You had three within the first year?

A. Oh, August of 19?

Q. '90.

A. Oh, I am sorry, I thought it was '91 -- none.

Q. Okay. And if we went to 18 months - you said the range was 12 to 18 months - we went to 18 months, that is what, February? And by February, you

had one, right?

A. I think in remembering, that wasn't when the proposal was put forward. That was just an indication of the project.

THE CHAIRMAN: I think you both have a different start date. One person is starting the thing when actually, there is a hard written proposal in; and the other is saying when the preliminary would be in. I guess there are two different time frames.

MR. SHEPHERD: Well, Mr. Chairman, I did frame the initial question by saying --

THE CHAIRMAN: I understand you put the question that way, but they don't -- I presume they do nothing until the January thing comes in. What could they do, I wonder.

MR. SHEPHERD: Q. Well, what did you do? That is interesting.

Between August '89 and January 1990, what did you do with those projects?

MR. VYROSTKO: A. Well, the preapplication, all the preapplication is for is it was an expression of interest, trying to give us an indication as to what type of response we would get to the request for proposal.

Q. All right.

A. And, in fact, when we saw we had a good response, then we were quite satisfied that the process was in place and we waited for the formal proposal.

Q. Didn't you, in fact, talk to a lot of those developers and as a result get much changed formal applications from many of them?

A. In some cases, we would have talked to some of the developers if they came to us and asked us questions, yes.

Q. It wasn't like you were sitting doing nothing between August and January. You were pretty busy, right?

A. Well, we also had a lot of projects from before the request of proposal that we were negotiating as well.

Q. Okay. If we looked three years ago at how long projects were taking to get a deal, the larger ones were in the six-month range; isn't that right? You only had a couple.

A. I don't think that is any different, the earlier ones than the later ones.

Q. All right. If you were to prepare a list of deals - I am not going to ask you to, don't worry - but if you were to prepare a list of all deals

that you have made, that the NUG division has made, from start to finish, putting in first contact, date of signed contractor, date of rate offer accepted perhaps - maybe that is easiest - just for over 5 megawatts, just for the ones negotiated, wouldn't that chart show dramatically increasing delays over time from '88 to today?

[11:22 a.m.]

A. I'm not sure if it would.

Q. Well, is that a no it wouldn't, or is that a, you don't know?

A. I don't know.

Q. Could you prepare it - don't show it to us - just prepare it and tell us what it shows?

MR. BROWN: A. It would be very difficult to answer that question based on the fact that a lot of delays are not because of Ontario Hydro, it's the fact the developer may have his own cash problems and goes away for two years, even though he's brought the project proposal to us, and three years later comes back saying, I'm interested again, let's talk.

The date we show is when he first came into our door, three years later he says I'm back at your door, let's start over.

I think if you really want a true indication it's only the final negotiation which I think is in the answer Mr. Vyrostko already mentioned, which is 12 to 18 months.

There's a lot of work that goes on by the proponent himself to increase his delay. It has nothing to do with Ontario Hydro.

Q. All right. Let's assume a hypothetical utility, okay, not Ontario Hydro. Is it correct to say that contracting delays between the utility and the independent power developer costs the developer money?

MR. VYROSTKO: A. Yes, they could.

Q. And why is that?

A. If the developer, for instance, has acquired some facilities that are not bringing any return to the developer, then that would be costing him money.

Q. Even if the developer hasn't acquired any facilities, the developer is spending money from day one; right?

A. No, not necessarily. The developer might spend money putting a proposal together and then he may not spend any more money until he gets to a certain stage of negotiations, or development or

whatever.

Q. Well, this is interesting. Before you can get to a price deal, all right, you need to be satisfied that you have firm quotes on equipment and things like that; right?

A. That's correct.

Q. And you can't get that unless you have full engineering done; right?

A. That's correct.

Q. And full engineering costs a fair bit of money; doesn't it?

A. That's correct.

Q. And so that all has to be spent during the contracting process; right?

A. That's correct.

Q. And we're not talking about tens or hundreds of dollars, we're talking about, millions of dollars often; aren't we?

A. For larger projects, yes.

Q. Okay. And that's a cost, right, if you have to spend that money before you got a contract, the longer it takes the more it's costing you; right?

A. Well, that's the cost to the developer of getting into the business, that's correct.

Q. I'm reminded by Dr. Hamrin that there

are also of course legal fees all the way through this which dramatically increase costs, but of course I won't ask you that question.

Now, if you had the price and terms fixed in a standard offer contract let's say, that could reduce the developer costs; right?

A. It's possible.

Q. Okay. And if you reduced developer cost, doesn't that mean that more projects are economic?

A. Not necessarily.

Q. Let's just say you've got three categories of projects; you've got projects that are clearly okay, they can spend $5 million on negotiating with Hydro they're still going to be okay, that's category one, we don't need to worry about them; right, they are going to go.

You have category 2. Category 2 you could pay them to negotiate with you, there's still no possible way that the project is going to be economic. So we don't have to worry about them either; right?

A. Right.

Q. Category 3 are the ones that are on the margin; that is, they're within a million or two of being economic and if they could save a couple of

million dollars on contract negotiations then they would be economic; right.

A. I don't think the contract negotiations that we undertake with a developer would cost millions of dollars like you're suggesting.

Q. Okay. Hundreds of thousands of dollars, I don't care what the number is, they could easily cost hundreds of thousands of dollars; couldn't they?

A. It's possible.

Q. Okay. And any projects in that marginal range, the only effect of reducing the contracting costs is to make them more economic; correct?

A. If they were able to reduce that cost, then it would have a better economic position, that's correct.

Q. So the only effect of reducing, whether it's delays or the amount of expense to negotiate, if there is any effect at all it has to be to increase the number of economic projects; isn't that right? Isn't this just a syllogism here?

A. I guess my only concern is that when we're looking at projects where you're spending millions of dollars in negotiating are typically large

projects and I would think that the negotiating side of it is not the most sensitive, it's other elements of the project and the timing spent on negotiating, in fact, might bring you greater value in some of the other elements of the project to make it more economic.

MR. SHEPHERD: Mr. Chairman, I'm going to a new area, so this may be a good time for a break.

THE CHAIRMAN: We will break for 15 minutes.

THE REGISTRAR: This hearing will recess 15 minutes.

---Recess at 11:30 a.m.

---On resuming at 11:50 a.m.

THE REGISTRAR: Please come to order. This hearing is again in session. Be seated, please.

THE CHAIRMAN: Mr. Shepherd.

MR. SHEPHERD: Mr. Chairman, as usual we have some items of business. The first is, Dr. Connell asked for the transcript reference of the discussion of environmental values as opposed to economic values in Panel 3, and that transcript reference is Volume 41, and it commences at page 7352 and goes on for a few pages.

DR. CONNELL: Thank you.

MR. SHEPHERD: The second item is, Mr.

Campbell and I had a discussion at the break concerning Exhibit 330 and discussions about how it will be used and whether the numbers are acceptable to the Hydro witnesses, et cetera.

And I think what we have concluded is that I will not deal with Exhibit 330 revised today. The Hydro witnesses and their staff will have an opportunity to look at it over the next few days, or even a week or two, I will meet with them and Mr. Campbell to talk about what's in it and whether we are all comfortable with the numbers, and then some time towards the end of the cross-examination of Panel 5, I will come back for a specific cross-examination on those points.

THE CHAIRMAN: That will be satisfactory. In fact, it's, generally speaking, a good way of solving problems of that nature.

MR. SHEPHERD: Mr. Chairman, if you take a look at our outline, which is Exhibit 325?

MR. BROWN: Three.

DR. CONNELL: Three.

MR. SHEPHERD: 323. All right, I lost track. We are now on the heading, Limits of Independent Power.

I should advise you that subject to the

length of Mr. Campbell's short redirect right after lunch, I anticipate that we will be finished between 4:00 and 5:00 today -- or between 4:00 and 4:30, I guess today actually.

Q. Mr. Vyrostko, we talked a little bit about this earlier, but maybe I can just get it straight in my mind. Tell me if we have covered some of these already, because I may have lost track a little bit.

Your general position, your principle I think - correct me if I'm wrong - is that Hydro will buy the maximum economic independent power it can get?

MR. VYROSTKO: A. Within the capability of the system to take that, yes, that's correct.

Q. Okay. Well, subject to the system capability, presumably if you could get 10,000 megawatts of independent power you would take it then?

A. We would, again, try to get as much as we can, that's correct.

Q. Okay. And I think we agreed earlier that if that sort of thing happens, if you went way over your numbers, what would really happen is that the avoided costs would start to go down as you got more and, in effect, that would turn off the tap; is that a fair assessment?

A. I would think the price -- the avoided cost is a price signal, yes.

Q. Well, Mr. Snelson, from a planning point of view, is that a reasonable way of looking at it, as you start to get up in numbers over your projection, price starts to go down and you start to narrow what you can get?

MR. SNELSON: A. As you need additional generating capacity less, because you're into a surplus situation, perhaps an increasing surplus situation, then value of that additional capacity goes down and will be reflected in avoided cost.

Q. In some ways this is self-correcting, isn't it, in the sense that if you get too much and the price goes down, you don't get all that much because the price is too low; isn't that right?

A. It operates in both directions. During the period of capacity shortage avoided cost goes up and encourages additional amounts, and during period of capacity surplus avoided cost tends to go down which tends to discourage additional amounts.

Q. And that's fundamental to the avoided cost system; right, it's something that happens because of the structure of the avoided cost system?

A. It's something that certainly happens

in our method of calculating avoided cost.

Q. Okay. I'm just looking at your supplementary witness statement which is - actually I'm not looking at it yet, I will in a second - and that's Exhibit 319, and at pages 7 and following there's a discussion about how much you had planned before and your new target -- or, sorry, your new forecast and perhaps, let me just simplify this to see whether I've got this right.

It appears that you say that you can take another 1,000 megawatts above your previous 2,100 megawatt forecast, but at that point you're already creating a surplus situation, and so that may be the limit of what you can realistically take in the near term; is that fair?

A. I don't know whether we've said this is our limit of what we can take, but we are getting close to what we can take. Presuming that demand management achieves its targets, that the load forecast is somewhere close to meeting it and that other things happen as expected.

Q. Given Mr. Vyrostko's comment, Mr. Vyrostko, if more comes in the door -- you're up to 3,100 megawatts and somebody comes in with a 2 megawatt small hydro project, you're not going to say no; are

you?

MR. VYROSTKO: A. Depends on the particular circumstance. If it can be accommodated on the system, we probably wouldn't say no, that's correct.

Q. Even if you already had a surplus?

A. Again, if it could come in within the costs at the time, I don't think we'd say no.

Q. Okay. But I guess that's the point, right, is at that time the avoided cost would be lower so they can come in all they want but they won't be able to meet the price; right?

A. Well, if the price is lower and they can't meet it, then they couldn't come in, that's correct.

Q. I wonder what this means in terms of technology mix.

[12:00 p.m.]

We are agreed are we that small hydro has been experiencing some delays in its development, if you like, because of site releases and environmental issues, et cetera; is that right?

A. That's correct.

Q. I take it that it is fair to say that natural gas-based projects, whether they are major

supply NUGs or whether they are cogen, they are right now coming on stream pretty quickly, aren't they?

A. Currently there is a window of opportunity, that's correct.

Q. And you are aggressively seeking as much natural gas based-independent power as you can get?

A. We are going after all kinds of non-utility generation, not just natural gas?

Q. That includes natural gas?

A. It includes natural gas.

Q. Is there any danger that the natural gas projects will simply fill up the whole 3,100 megawatts and you won't have any room for any of the renewables?

A. Again, our preference is for both renewable and high-efficiency cogen. And if high-efficiency cogen was to fill up the additional 1,000, then it's still well within the expectation we are looking for.

Q. Actually that's an interesting question I guess I should ask. The way your system works, you value a large cogen project at the identical amount, although subject to obviously site-specific considerations, at an identical amount to a small hydro

facility; right?

THE CHAIRMAN: Sorry, I don't quite follow the question.

MR. SHEPHERD: Q. The price you pay for power from small hydro is the same as the price you pay from large cogen?

MR. VYROSTKO: A. What is small hydro?

Q. A 2 megawatt small hydro facility and a 100 megawatt thermally-matched large cogen facility?

A. The avoided costs would be the same for each project if they were to operate identically. And then depending on which voltage they are connected at, there would then be additional considerations for avoided costs. And so typically, a large project would not be connected at a distribution voltage, whereas a small hydro would, and so therefore the small hydro would get more than the large project.

Q. In both cases you have the same preference premium, 10 per cent; right?

A. It depends on the efficiency of the cogen. If it's a high-efficiency cogen, it would qualify for the 10 per cent.

Q. So, it actually doesn't need to be really high efficiency; does it? It only needs to be a 6,000 heat rate; right?

A. That's high-efficiency cogen.

Q. Didn't we have a discussion about this in which Mr. Brown, I thought Mr. Brown said that 4,800 was the sort of heat rate that you would get for a really good project.

A. Again, it depends on high efficient, really good, all those various categories.

Q. Okay. Do you believe that the environmental impacts, the negative environmental impacts, or environmental costs, I guess is a better word, of large cogen and small hydro, the sort of examples we are talking about, are comparable?

A. That I can't answer necessarily. It depends on the location of the project, because in some cases a small hydro project could have some serious environmental impacts, whereas a larger cogen may not have any. So it depends on the site-specific nature.

Q. Sorry, a large cogen project could have no environmental impacts?

A. No. Any project will have some type of environmental impact, regardless of what type it is. But relative to the example I was saying, it would be much smaller, or could be much smaller.

Q. Than the small hydro project?

A. Yes. It depends on where it's

situated.

Q. There is no way of generalizing, I guess. You couldn't say, if you looked at all the small hydro projects you have seen and all the large cogen projects you have seen, you couldn't make a generalization that the small hydro are generally environmentally better than large cogen?

A. No. I guess my only evaluation of that is that all these projects you are talking about in fact have received all of the various permits and licences necessary to operate. So, they have met all of the various requirements under the provincial government. So, I would imagine that they are meeting all those regulations.

Q. I guess I am going beyond that, though.

It is true that once you meet regulations it doesn't mean you have no environmental impacts; does it?

A. No, there may still be some environmental impacts.

Q. And there is no way that you can assess or maybe you just -- is isn't a concern to you to assess what those residual environmental impacts are by technology, by size, by anything?

A. I guess the only way we have done that is by talking and putting preference on to renewable which we believe have minimal environmental impacts and by focusing on high-efficiency cogeneration which again has minimal impacts from an overall ratepayer -- not ratepayer, but customer perspective, then those are two that we would treat reasonably equally.

Q. Okay. You said the other day that you have about 1,000 megawatts that you haven't committed yet; right? I shouldn't say "committed". Wrong word.

If you take the word "committed" and you expand it to include projects where you have an accepted rate offer, then you have got about 1,000 megawatts left to deal with; right?

A. In that area, that's correct.

Q. I understood you to say the other day when we were talking about small Hydro versus cogen, that basically that 1,000 megawatts is for high-efficiency cogen or small hydro or wind or wood waste or any of the preferred options.

A. That's correct.

Q. You set it aside for preferred options and you are not take non-preferred options

within that 1,000 megawatts.

A. I think there is a time frame here. When we were looking at the plan and we were putting the numbers together, we said that we had roughly 1,000 megawatts left.

The business hasn't stopped for projects that are in the final stages of negotiations. So there still may be some projects through the RFP that have to get finalized. So, there may be a few projects still have to be concluded with the deal.

Q. And they would eat into that 1,000 megawatts?

A. Yes, they would.

Q. And they are all cogen?

A. No, there is a hydraulic project in there well.

Q. Is that that big one, that 100-odd megawatt one?

A. No, it's not that big.

Q. There is a hydraulic in the RFP?

A. No, it's not in the RFP. It is just projects that we are concluding and some of them are part of the RFP.

Q. If terms of megawatts, the vast bulk of those that you are close to concluding are cogen;

aren't they?

A. I believe so.

Q. And they will eat into the 1,000 megawatts?

A. Yes, I believe they would, yes.

Q. Do you have a guess right now as to how much of that 1,000 thousand megawatts is going to be used up with the projects you are talking to right now, the cogen ones?

A. I can't...

MR. BROWN: A. We are going to try and provide this information in the 1991 NUG plan, our best estimates of all proposals ahead of us. That assessment is underway right now.

Q. I guess all looking for is an order of magnitude. Are we talking about 50 megawatts, 500 megawatts?

MR. VYROSTKO: A. Again, I think it would be at the lower end as opposed to the higher end, but I...

Q. So, we have something like 1,000 megawatts left, all right, at the current avoided cost anyway; right? You can take more than 1,000 megawatts but I think we have agreed that if you start to take more than 1,000 megawatts the avoided costs will go

down.

A. That's correct.

Q. So, we have this number 1,900, whatever it is, and if I understand you correctly, it's essentially a competition, isn't it, between large cogen and small hydro and wood waste and some landfill gas to take up that chunk?

A. We don't see that as a competition. The projects that come in and those that are good projects get accommodated.

Q. You have a window of opportunity for cogen rate now.

A. We do.

Q. If you get 1,000 megawatts of cogen tomorrow morning, then you have no room for small hydro; right?

A. If the 3,100 was an absolute limit we have not have any room for small hydro.

Q. Well, even if it isn't an absolute limit, the economics start going down for small hydro after that; right?

A. They could, yes.

Q. Is that one of the reasons why you are projecting less small hydro in your plan, because it will take longer and there won't be room for it?

MR. BROWN: A. That's not correct.

Q. Well, haven't you considered that in your plan?

A. The plan is based on avoided costs. The 1991 NUG looked at cogeneration and small hydro equally and those numbers were just simply added together. There was no balancing or offsetting or cancelling one to get the other.

Q. But now you are working in the 1991 NUG plan and you have told us what the numbers are going to be?

A. I have provided a preliminary estimate. There is still a lot of work to be done in the '91 NUG plan. We just provided this information to give you a sense of what we are working on.

Q. And the 170 megawatts of small hydro, you have, as I understand your evidence, you have considered the problems with the delays in environmental approvals and costs; right?

A. That's correct.

Q. You have not considered in that number, am I correct, you have not considered the potential that avoided costs will go down or that you will simply run out of ability to take new projects?

MR. SNELSON: A. Mr. Shepherd, in my

direct evidence I stated that the 3,100 megawatts was not constrained by system need, and that being the case, then it wouldn't have reduced Mr. Brown's estimate of the hydraulic potential on the grounds that the system need had already been filled by gas-fired generation.

Q. But it would have the effect, wouldn't it, Mr. Snelson, that if the avoided cost went down, his economics would be changed and he would have to say we are going to get less of it; wouldn't he?

A. This effect could be reflected in future evaluations if the avoided cost goes down. But it is not reflected in the estimates that have been given in this panel.

Q. But if we just assume for argument's sake that there is a danger that the large cogen will get in first and will hurt the economics, say, of small hydro as avoided cost goes down, that's going to especially be a problem for community-owned or First Nation-owned projects, right, an area that's just getting going now, Mr. Vyrostko?

MR. VYROSTKO: A. It depends. If some of those projects are in fact in remote communities, it wouldn't be affected at all.

Q. I am just talking grid connected.

A. Again, if we are looking at small projects, I don't see how the impact of small projects would necessarily be affected by the 3,100.

Q. Well, whether a new project is 2 megawatts or 200 megawatts, if it's over the 3,100 you pay less for it than if it's today; don't you?

A. If, in fact, we were past 3,100 and the avoided cost did come down, then we would be then negotiating those projects, or at least the rates would be set, again under 5 megawatt projects, based on those new avoided costs.

Q. Now, of course, we are talking about all of this under the assumption that you are going to do all of the central things that you are planning to do, you are going do build large hydro and you are going to buy from Manitoba and all that sort of stuff. But if you didn't do those things, Mr. Snelson, then you wouldn't have a surplus at all; would you?

MR. SNELSON: A. I would have to check the numbers to see whether all of the surplus disappears. The surplus numbers that we did give you was on the basis of the other things going ahead. But the contribution of those other things to '96/97, which is the years that are in balance, right, is very small. So the hydraulic makes a very small contribution in

that period and the Manitoba purchase makes no contribution in that period. So, the system is either in a surplus or very close to surplus without those things.

Q. I thought you said that the surplus is from about 2001 to 2005, right? Or 1999 --

A. I believe I said it started in 1999.

Q. Okay, to 2005.

And you start buying your first batch of power from Manitoba in '98; right? That's the 400 megawatts.

A. 200 megawatts.

[12:12 p.m.]

Q. Sorry, 200, right. And you start buying your second batch of power from Manitoba in 2002 and it is 200, 400, 600, 800, 1,000, right, in subsequent years? So that is exacerbating your surplus, isn't it?

A. Well, I did not say it was not exacerbating the surplus; I merely said that we may still be in the surplus situation at that time without those options.

Q. Okay, and that is fair. You probably are, right? I mean, certainly in the year 2000, you have got 2,600 megawatts of surplus projected, right?

A. That is just what I am checking.

Q. And the hydraulic and the Manitoba, even if you had all Manitoba, don't total 2,600, do they?

A. That's correct and that is why --

Q. So you are still going to have a surplus?

A. We are still going to have a surplus.

Q. Okay. But it is going to be much smaller?

A. Yes.

Q. And within your planning, if you have a smaller surplus, then the impact on avoided cost is less, right?

A. Yes.

Q. Okay. Let me go on to transmission limitations and we talked about these a bit, but let me just see if I can -- there are all sorts of numbers all over the place on this and I am having a hard time understanding what the real transmission limitations are for your ability to take non-utility generation.

If I understood some of the things that you have said and indeed, some of the things that were said by Mr. Brown and others at the IPPSO conference, you have room for less than 500 megawatts more from

northwestern Ontario, less than 800 megawatts more from northeastern Ontario and less than 500 megawatts more from eastern Ontario and nothing from southwestern Ontario.

Am I talking in the right range here?

A. The numbers are in the order of hundreds rather than thousands of megawatts. And Mr. Macedo on Panel 7 will have the best information on those. I think those numbers are somewhat off.

Q. Okay. I thought these were from your speech, Mr. Brown, or maybe your chair's speech.

MR. BROWN: A. I did not talk about transmission in my speech, but the person after me from the Government of Ontario did and I am not sure of his source.

Q. All right. Well, I guess some things are certain, aren't they? If you take a look at Interrogatory 5.14.221 --

THE REGISTRAR: 5.14?

THE CHAIRMAN: 221.

THE REGISTRAR: 221.

THE CHAIRMAN: Have we had it before?

THE REGISTRAR: I am just checking.

MR. SHEPHERD: I don't believe so, Mr. Chairman.

THE REGISTRAR: No, 321.26.

THE CHAIRMAN: Thank you.

---EXHIBIT NO. 321.26: Interrogatory No. 5.14.221.

MR. SHEPHERD: Q. And there it says - this is asking, what is the problem with the west system, so to speak. And in the third sentence, it says:

> A further 100 megawatts approximately beyond currently committed capacity could be accepted - that is from the west system - before development would have to be frozen.

Is that a limit on what you can take in NUGs on the west system?

MR. SNELSON: A. Can I just have a second to read the interrogatory, please?

Q. Sure.

A. Yes, that is an estimate of the limitation.

Q. Okay. Now, I just got this interrogatory yesterday, so I am sorry, I haven't copied it. In fact, I hadn't even planned to use it. And I am going to ask you to turn up Interrogatory 7.14.34.

A. I am not sure whether I have that or

not.

THE CHAIRMAN: That should be given a number.

THE REGISTRAR: Yes. That will be 321.27.

THE CHAIRMAN: Thank you.

---EXHIBIT NO. 321.27: Interrogatory No. 7.14.34.

MR. SNELSON: Yes.

MR. SHEPHERD: Q. And as I understand this, what it says is, with the Manitoba purchase - and I had understood that the Manitoba purchase gave you more capacity to take NUGs from the west system to the east system, right, because of the transmission upgrade, right?

MR. SNELSON: A. To some extent.

Q. And as I understand this, with the Manitoba purchase - I am looking at page 2, the last page - about 100 megawatts of additional capacity could be accommodated; that is NUG capacity.

That is the same as a without it, right?

A. No. I believe that that is intended to be the comparison between two scenarios, one of which is without the Manitoba purchase or the additional transmission and the other one is with the Manitoba purchase and the additional transmission. So

the 100 megawatts that can be taken in the 1990s approximately, is common to both scenarios. And that is why the figures on the first page of this interrogatory show zero as the impact up until the years the transmission and the purchase comes into effect.

Q. Oh, I see. I see. So there is this whole chart of the impact in terms of capacity that can flow through the east/west tie, I guess, right?

A. That is the intention of the chart, yes, of additional -- this is a difference between the two scenarios.

Q. And it shows that starting in the year 2000, there's some more capacity. It is actually 1100 megawatts in the year 2000, but it quickly drops down to 100. And then by the year 2010, it is actually a negative number?

A. Yes.

Q. So there is actually a reduction in the capacity as a result of the Manitoba purchase, right?

A. Well, the assumption in the scenario without the Manitoba purchase is that the east/west tie would be built later to meet west system requirements. And so that change of sign in the table coincides with

the assumed construction of an east/west tie in the scenario without the Manitoba purchase.

Q. Okay. I guess if we want to ask technical questions about this, we should be asking Panel 7, right?

A. That is correct.

Q. I sense a certain reluctance in you to keep on with it.

Mr. Chairman, I will provide copies of this after lunch.

THE CHAIRMAN: Thank you.

MR. SHEPHERD: Q. Mr. Vyrostko, is it true that if you look at the small hydro sights in the province, you will find that the majority of undeveloped small hydro sights in the Province of Ontario are in Hydro's west system?

MR. VYROSTKO: A. Yes, the majority are in the west system.

Q. Mr. Brown, have you taken transmission limitations into account in your projections of small hydro?

MR. BROWN: A. To those watersheds that are not included -- sorry, those that are excluded, the over 5,000 megawatts, the remainder, the 1,252, I have not looked at transmission as implementing their

development.

Q. Is it fair to conclude from your direct evidence, Mr. Vyrostko, that the upcoming transmission constraints are becoming a serious concern for non-utility generation development?

MR. VYROSTKO: A. They are a constraint in different areas of the province.

Q. Okay. In fact, a couple of weeks ago, your chair in speaking to the industry made a point of saying that it was a big issue, right, and that he was expecting the industry to stand beside Hydro in getting more transmission approvals; isn't that right?

A. Transmission is an issue with Ontario Hydro and as much as non-utility generation gets connected to that transmission system, then it is a problem, yes.

Q. Now, aren't transmission constraints sort of similar to the pricing and capacity issues we were talking about earlier; that is, as the available transmission capacity is used up by cogen projects, for example, you run out of room for other projects, right?

A. As the transmission gets used up, there is then less opportunity for other things to be connected, that is correct.

Q. So, if large cogen has this window of opportunity and can go now and small hydro is delayed as the process gets sorted out, is it fair to say that large cogen might take up all the room and you might not have room for the small hydro?

A. Not necessarily. It depends on your definition of large cogen.

But if we are looking at large, the high-efficiency cogen projects, many of those are already connected to the transmission line because they are existing steam users. And so, to some extent there may be some assistance from that perspective.

Q. Sorry. All right. Is it true that when you become transmission constrained, you have to stop giving new projects credit for avoided transmission costs?

MR. SNELSON: A. It probably depends upon where the project is located.

Q. Well, if it is in an area where you have a transmission constraint, isn't it true that you don't give the project credit for avoided transmission costs anymore because you are not avoiding any transmission cost?

A. We are looking at ways of better reflecting the regional nature of the transmission

costs and the transmission cost savings to be able to better reflect that in how we deal with projects. At the present time, we apply it uniformly across the province.

Q. That is a problem then, is it?

A. It is an area we have to address.

Q. And so we will see at some point a new methodology that will address that?

A. I don't know quite how we are going to address it at the moment.

Q. Okay. It sounds to me from all this discussion, Mr. Vyrostko, like your current policies, how you approach this industry, may have the unintended effect of increasing combustion-based non-utility generation like cogen and/or indeed, major supply NUGs, and decreasing renewables, such as small hydro; isn't that right?

MR. VYROSTKO: A. I don't see it that way.

[12:28 p.m.]

Q. Isn't it, in fact, true that you make your decisions on economic terms, not environmental, social or other terms?

A. Our decisions are not necessarily based just on economics, they're based on technical as

well. But from an environmental perspective, the assumption is that every project will meet all regulations in the province.

Q. And that's it, you don't care about any other environmental issues?

A. That's the regulations that we would ask that all proponents follow.

Q. And, in fact, if you look at Interrogatory 5.14.63, and I believe this has already been given a number, Mr. Chairman, though I don't remember what it is.

THE REGISTRAR: It has not been given a number. It is now 321.28.

---EXHIBIT NO. 321.28: Interrogatory No. 5.14.63.

MR. SHEPHERD: Q. If you can just look at the attachment, the first page, you notice you have the question and then you have the answer which is the first page attached to it.

In Item 10 you're talking about how you decide on projects, and Item 10 is: The overall criteria is an economic one. And I take it that means that when push comes to shove what you're doing is you're trying to buy the cheapest power?

MR. VYROSTKO: A. In fact, one of the key elements of non-utility generation for us is

economic projects so, therefore, they have to be economic. It's the key factor.

Q. Okay.

MR. SNELSON: A. We do have, Mr. Shepherd, the 10 per cent premium for the preferred options.

Q. I'm glad you reminded of that, but I'm not going to talk about it right now, we'll talk about it later.

Aside from the 10 per cent preference premium, are you taking any other concrete actions to maximize the environmental, social or other benefits from non-utility generation, other than economic?

MR. VYROSTKO: A. One of the activities that we have is the sharing of information, providing information to proponents on various elements of environmental issues associated with projects.

So that we, in fact, raise the awareness of proponents that the environment is an important issue and that they are aware of the need for environmental regulations and that they take some responsibility for the environment when they design the project.

Q. This is just with meeting regulations though?

A. This is in general, in terms of environmental issues, trying to again ensure that they are aware of and are designing the project in a responsible manner.

Q. So when a proponent comes in and he's within the regulation for nitrous oxides, you say to him: Well, I think you can do better than that, you should put in a selective catalytic reduction equipment and get down even further than the regulation. Is that what you say to them?

A. We may, in fact, give some information with regard to things like that, that's correct.

Q. One of the reasons that the large projects that you are working on are getting the bulk of your attention is that they're cheaper due to economies of scale; isn't that right?

A. Not necessarily. Large in itself doesn't mean economies of scale in all cases, in some cases it could mean economies of scale.

Q. It's a fair generalization though; isn't it, that as you get larger you have economies of scale?

A. Generally speaking, that could happen, yes.

Q. Do you know the difference between engineering economies of scale and manufacturing economies of scale?

A. I'm not familiar with those two terms.

Q. Okay. Well let's hypothesize a 250 megawatt cogeneration facility. Now, the size of that facility could, often does, give it some economies of scale in things like engineering, interconnection costs, time spent in negotiations and things like that, whether it's a power contract or fuel contract, all those sorts of things; right?

A. Yes.

Q. Especially actually fuel price; right, often gets a deal on the fuel price because of its size and it can go directly to the suppliers?

A. There's a threshold that that could happen, but that's quite a low threshold, so I would imagine, you know, a lot of projects much smaller than that would still have the same economies for gas purchases.

Q. Okay. But certainly all these other things, you're getting savings per kilowatt over what it would be if it were smaller; right?

A. The proponent would be getting those

savings.

Q. Yes, yes. Now, let's hypothesize 251 megawatt small hydro facilities. They don't get those same economies of scale; do they, they each have to engineer and they each have to interconnect. They don't get those savings; do they, typically?

A. Typically they wouldn't get the necessary economies of scale.

Q. Of course, if the manufacturers of their equipment could count on 250 orders for turbines, for generating gensets, for connection devices, et cetera, the price would go down; wouldn't it, typically?

A. Again, I can't answer that.

Q. You don't know?

A. Well, I don't know whether 200 pieces of equipment would necessarily drive the price down.

Q. If you have enough volume for the manufacturing sector, the price goes down; isn't that a general rule?

A. Typically it would go down.

MR. SNELSON: A. That's not always the case. We're also concerned about situations where high volume purchases strain manufacturing capacity and drive the price up.

Q. That's a temporary function though; isn't it? In economics that's temporary until they tool up and become more efficient; right?

A. It may be temporary.

Q. Okay. And the way your system is set up, where you do everything on a project by project basis and your small hydro projects keep on going down, is it fair to say that your structure allows developers to take full benefit of those engineering economies of scale, project size, but does not allow the smaller projects to take advantage of manufacturing economies of scale; that is, numbers of projects because the manufacturers have no way of being confident that they will have a lot of orders and so they can tool up to save money; right?

MR. VYROSTKO: A. That's a decision, I would imagine, that is left with the proponent and the industry as they look at opportunities.

Our program is to try to get cost-effective non-utility generation, and we do have preference for renewables and high-efficiency cogen.

I expect a developer to look at sites and then to make decisions based on his or her economics as to what they want to do, and if they choose to go for small hydro sites, then there are all the elements

associated with the marketplace with small hydro sites, and that's a responsibility that they would be taking on if they choose that type of technology.

Q. If Hydro were to say: We've got this thousand megawatts a year that we have to fill up, let's said aside 500 megawatts and we're going to say to the small hydro people, or to the renewables people generally, that 500 megawatts is for you for the next three years, we're setting it aside, we're not going to use it up with anybody else, the next three years is your window of opportunity.

Am I right that the impact of such an announcement is likely to be, as Mr. Snelson says, a temporary increase in prices and then a decrease in the costs of projects?

A. I don't know what effect that would have necessarily.

Q. That's not something you've analyzed?

A. No, it's not.

Q. Okay.

MR. SHEPHERD: I'm going on Mr. Chairman, to the subject matter of pricing issues.

Q. And we are still on you, Mr. Vyrostko. In your view, and based on the knowledge of the industry that you've been able to amass, is avoided

cost the most appropriate basis upon which to set prices paid to independent producers?

THE CHAIRMAN: I'm sorry, based on what basis?

MR. SHEPHERD: Q. Is it the most appropriate basis upon which to set prices paid to independent producers?

MR. VYROSTKO: A. It depends on the circumstance. In some cases avoided cost would be the most appropriate; in other cases it may not.

Q. And what other bases would you say might be appropriate in certain circumstances?

A. If, for instance, you had - going back to the example you were just talking about with regard to the number of players - you might use some type of competition and use whatever price comes out of the bids to determine the price you pay.

Q. This is like competitive bidding you talked about earlier?

A. Yes, that is competitive bidding.

Q. And you've, in fact, said that you're going to go to competitive bidding in the near term; right?

A. No, we said we would be looking at going to competitive bidding.

Q. Oh. And haven't you said a number of times that ultimately, with a mature industry, competitive bidding is really the only answer to get the right price?

A. I don't think I've ever said it's the only answer. I guess I've said that it is an answer in getting a price that the industry is willing to work towards.

Q. Okay. Let me come back to competitive bidding in a second, but let me just -- before we go into that, we talked, for what seemed like a very long time, about the benefits of independent power.

In your view, does the current pricing structure that Ontario Hydro offers for independent power fully reflect all of the economic, environmental social, job creation, system and other benefits associated with independent power.

A. I think that we reflect, through our pricing signals, those environmental, social costs that would be in the options that we evaluate and that would then be the reasonable types of environmental and social costs that would be accommodated through the projects that we have as alternatives.

So I would say that there are some social

and environmental costs that are included in our costs.

Q. Not all of them?

A. Not all of them.

Q. Does your price reflect the full value of reducing emissions below regulatory limits?

MR. SNELSON: A. The avoided cost has included in it the cost of acid gas emission reduction and that is not limited by the -- that's not set at zero in years when we predict that we can be less than the limit. So there is value given to acid gas emission reduction whether or not we're below the limit.

Q. That's partially responsive I guess, but certainly acid gas is not the only emission that you have to be concerned with; is it?

A. That's correct.

Q. And my question was: Does the current price you pay to non-utility generators reflect the full value of reducing emissions below regulatory limits?

A. I think we've had a pretty thorough discussion in Panel 3 of what is included in avoided cost with respect to social and environmental costs and the aspects that are included are acid gas emission reduction, and the 10 per cent preference premium makes

some allowance for other social, environmental factors, but is not a quantified cost estimate of those factors.

Q. Okay. And the same is true, I guess -- this is all the same discussion we had in Panel 3; is that right, that's what you're saying?

A. I believe that as regards what is included in the avoided cost, that was discussed in Panel 3.

Q. So whatever values there are they're in the preference premium or they're not there; is that right?

A. As regards the avoided cost calculation, yes, and Mr. Vyrostko has discussed how the avoided cost is used in negotiating project.

Q. All right. Now, Mr. Vyrostko, this is for you. Have you looked at this issue, externalized costs and values, as part of your role as head of the NUG division?

[12:45 p.m.]

MR. VYROSTKO: A. No, I have not.

Q. So, you have relied completely on the people from system planning in terms of input on valuing benefits like these? They do the numbers, you just accept them.

A. To reflect a value of projects we use

the avoided cost provided by our planning people and then negotiate the projects.

Q. Okay. You haven't then followed the debate on those issues in the United States?

A. I am aware --

THE CHAIRMAN: Whether he has or not, why should we be getting into it? This is Panel 3 matter, surely.

MR. SHEPHERD: Mr. Chairman, I am going to go into the setting of NUG pricing policies which is quite different from avoided cost.

THE CHAIRMAN: Well then, perhaps we can get into that. But what does or does not constitute avoided cost I think has been thoroughly canvassed in Panel 3.

MR. SHEPHERD: Okay.

THE CHAIRMAN: And his evidence is he takes that figure from the people who develop it and works with it. Now, how he works with it is something that you can certainly ask him about.

MR. SHEPHERD: Q. Let me try this: Mr. Vyrostko, you were involved in the initiation of the preference premium idea?

MR. VYROSTKO: A. We were involved in that process.

Q. In fact, isn't it true that the original idea of artificially increasing the price by 10 per cent originated right in your office; isn't that right?

A. I don't believe we ever were looking at artificially increasing prices.

Q. Maybe I used a loaded word. I'm sorry. I won't say it was unintentional.

The idea of adding 10 per cent, that originated in your office; didn't it?

A. What we were looking for is --

THE CHAIRMAN: Now please, Mr. Vyrostko, can't you answer that question yes or no?

MR. VYROSTKO: Yes.

THE CHAIRMAN: If you want to add anything to it by way of comment you are free to do that.

MR. SNELSON: My answer to that question would have been no.

MR. SHEPHERD: Q. So you are both claiming the idea; is that my understanding?

MR. SNELSON: A. I think it was probably something that had been discussed at various points in the organization through a period of time and I doubt that you can isolate one place where it originated.

It certainly had been discussed several times as various times in the organization to my knowledge, and at times when I believe Mr. Vyrostko was not involved in the discussions.

Q. Mr. Snelson, it is true, isn't it, that system planning and NUG division, in fact you and Mr. Vyrostko sat down and negotiated the 10 per cent number; isn't that right?

A. I wouldn't describe it that way, no.

Q. Well, am I right that Mr. Vyrostko had a higher number and you had a lower number and you ended up at 10 per cent?

A. I don't recall that particular part of the discussions. There were a number of discussions surrounding the whole process of project appraisal versus planning values and preference premium which were discussed as a package. I was present at some of the discussions, I was not present at all of them. And it was through that process that the -- and the energy management branch was also involved, that certain proposals were made and accepted.

Q. Mr. Vyrostko, is it fair to say that the number of 10 per cent was determined through discussion, I won't even call it negotiation, through discussion, and that, in fact, you developed the

rationale for it, the analytical basis, if you like, for it, after you decided it was going to be 10 per cent?

MR. VYROSTKO: A. I don't believe that to be the case.

Q. No, okay.

Let me just ask you a question about -- it's not on my list but it's something that's been bugging me on preference premiums. If you have a small Hydro project, let's say, you give it a 10 per cent preference premium; right?

A. Yes.

Q. If you have a combined cycle major supply NUG, you are typically talking about a project that has a heat rate of what, 6,800 to 7,200?

MR. BROWN: A. More in the order of 8,000.

Q. 8,000. So then you give that project, the combined-cycle project, a 5 per cent preference premium; don't you?

MR. VYROSTKO: A. It might be somewhere in that order.

Q. Well, you have sliding scale from 6,000 to 10,000; right?

A. Right.

Q. 8,000 is halfway in the middle, so isn't that 5 per cent?

A. On a straight line it would be 5 per cent.

Q. And that's how you do; isn't that right?

A. Yes, I believe it's straight lined.

Q. So, the actual difference, then, between somebody just burning gas, which you said is a non-preferred option, and somebody who has got a run-of-the-river small hydro project or renewable option is only 5 per cent; isn't it?

A. That's correct right now.

Q. Is that changing?

A. Again, we have said that we are looking at new regulations or new guidelines to proceed now with projects.

Q. Well, this is the first we have heard that you are going to reanalyze how you do avoided costs. You are going to go avoided costs differently too?

THE CHAIRMAN: No, I don't think he is saying that. I think he is saying they are going to analyze their criteria for who gets the premium.

MR. SHEPHERD: Okay.

Q. And so you may no longer have this 6,000 to 10,000 sliding scale?

MR. VYROSTKO: A. That's correct.

Q. Mr. Snelson just said that these discussions regarding the preference premium also were about project appraisal, avoided costs, and all that sort of stuff as well. It was all mixed in together; right, Mr. Vyrostko?

A. There were a number of discussions that were taking place with respect to the non-utility generation programs.

Q. Is it fair to say that Hydro is generally in a better position, all other things being equal, Hydro is in a better position if it gets a project that could supply electricity for a longer time rather than a shorter time?

Mr. Snelson, maybe you could answer that.

MR. SNELSON: A. All other things being equal is the preface to that which kind of --

Q. I try to match the assumption to the answer I want.

A. And if we are looking at long-term requirements, then we do believe that has higher value than long-term projects, higher value in a short-term project, and to some degree that's reflected in avoided

cost.

Obviously discounting has an effect on upon that is so with all financial matters.

Q. In fact, isn't the long-term nature of Hydro's own existing large hydro facilities one of the main reasons why Ontario Hydro has been able to keep customer rates down, right? They last a long time and they are cheaper as they get older.

A. I believe that the existing hydraulic is a significant factor in keeping rates down in Ontario.

Q. Okay. Maybe I will just have one other series before lunch. I am looking at a document, Mr. Vyrostko, entitled -- maybe I better get it out.

It's entitled, "Determination of Project Specific Avoided Cost and Sample Illustrative Rates or Non-Utility Generation NUG Projects over 5 Megawatts", dated April 1991, and it's annexed to Interrogatory 5.10.8.

THE CHAIRMAN: Has that been mentioned yet?

MR. SHEPHERD: No.

THE REGISTRAR: No, it hasn't.

321.29.

---EXHIBIT NO. 321.29: Interrogatory No. 5.10.8.

THE CHAIRMAN: I believe 5.10.8 is behind one of the others. Which one is it behind?

MR. SHEPHERD: It's attached to 5.14.53, Mr. Chairman.

THE CHAIRMAN: Behind 5.14.53. Thank you.

MR. SHEPHERD: Q. Are you familiar with this document, Mr. Vyrostko?

MR. VYROSTKO: A. Yes. I believe I referenced this in Interrogatory 5.14.53, either today or yesterday.

Q. Okay. And this is that avoided cost brochure generic sort of general avoided cost stuff that you give somebody when they first come in to talk to you; right?

A. That's correct.

Q. I am going to ask you to turn to page 5 of that, and this section appears to talk about some sort of risk premium that you give to projects that reduce Ontario Hydro's risk; is that right?

A. No, I don't believe so.

Q. Okay. What is it then?

A. It's one area of the project that we evaluate based on its capability to off-load risk from Hydro, and that in fact is determining the quality of

the project from an overall long-term viability perspective.

Q. So this doesn't affect price?

A. That's correct.

Q. But I guess this whole thing is about project specific avoided costs and price. I don't understand why it's in there if it's not about price.

A. Basically, what we are trying to do is show some of the important elements of projects that we look at when a proponent submits a project.

If, for instance, a project were not able to meet all of these criteria, then in fact going back to this risk sharing that we were talking before, if a project all of a sudden is not worthy of a typical NUG project off-loading risks, then we would be applying some judgments with regard to the implications of that to the overall project.

Q. So, if I just look at the -- look at, say, 1C, major -- well, no, 1B is a better one. Management team, you don't like the management team --

THE CHAIRMAN: Wait a minute. Where is 1D?

MR. SHEPHERD: 1B, as in Bob.

THE CHAIRMAN: Sorry.

MR. SHEPHERD: Q. If you don't like the

management team you will pay less; is that what you are saying?

MR. VYROSTKO: A. No. What we are saying is, if there isn't, for instance, a clear indication as to whether there is project management on the construction project; in other words, there isn't anybody in charge, they haven't made any plans to look at how they are going to manage the project, then there might be some concerns with regard to do they know what they are doing. And so then you would say, if they don't know what they are doing, then either we don't negotiate with the project or try to reflect some of that into the risks that we can be taking with that project.

[12:58 p.m.]

Q. And so you reflect that in price then?

A. We may. We haven't but we may.

Q. So the intent of this page then, if I understand you correctly, is to say these are the risks we look at in projects and if you are not up to scratch, we could, not necessary, but we could reflect it in your price?

A. Either in the price or in some other way, yes.

Q. Okay. I am interested that you have No. 2, acceptable financing plan.

Didn't you tell us that you don't ask about financing?

A. That's correct.

Q. Well, why is it in there?

A. Because if the project goes forward and at no time has the developer expressed any concerns with financing, that the developer is quite comfortable and doesn't require -- for instance, we have the financial assistance program that helps with the financing. And if the proponent is not asking for any assistance from us on the financing, then we are quite satisfied.

But on the other hand, if the proponent needs some assistance, will be looking to us to do some front end loading or something to help on the financing and then all of a sudden there is a little bit of risks that we could be possibly looking at, and then we have to judge that against the project.

Q. So, is that true of all of these things; that is, basically, the developer can say, now financing is looked after, don't worry about it, and you treat it as no risk to you?

A. Well, it may not be quite that

simple. I think what we are trying to do here is through providing this information up front to developers looking at proposals, what we are saying is these are very important elements in an overall project and what we would like you to do is to ensure that when you are putting the project together, you, in fact, do something about all those elements.

Q. Is it, in fact, true, Mr. Vyrostko, isn't it, in fact, the truth, that when you talk to a developer, you say this is the information we need and we must have it, period?

MR. B. CAMPBELL: Well, with respect, Mr. Chairman, that is not what the document says on its face.

MR. SHEPHERD: Mr. Vyrostko can say, no, that is not true, if he wishes.

THE CHAIRMAN: Well, it isn't what the document says on its face, Mr. -- counsel for Hydro's name I have forgotten. (laughter)

MR. B. CAMPBELL: It is such a relief for me to know that this doesn't only happen to me.

THE CHAIRMAN: This will be known as the first sign that I was deteriorating. (laughter)

MR. SHEPHERD: That may be a good time to break for lunch, Mr. Chairman. (laughter)

THE CHAIRMAN: Let me just read what I was looking at it. It says, examples of kinds of these plans are given but generators are expected to use their own judgment of what constitutes a reasonable plan. That is what it says in the document.

MR. SHEPHERD: But I think, Mr. Chairman, it also says that Hydro then assesses whether the proponent has satisfied these risk criteria.

THE CHAIRMAN: That's right. But it doesn't say that you have got to do it this way and not at all. That is what you were suggesting to the witness.

MR. SHEPHERD: All right.

THE CHAIRMAN: We will adjourn until 2:30.

THE REGISTRAR: The hearing will adjourn until 2:30.

---Luncheon recess at 1:02 p.m.

---On resuming at 2:34 p.m.

THE REGISTRAR: Please come to order. This hearing is now in session. Be seated, please.

THE CHAIRMAN: Mr. Campbell?

MR. B. CAMPBELL: Thank you, Mr. Chairman. I have provided to everyone, including your Clerk, and you should have before you a table which

is -- the title is at the bottom entitled, "Detail of breakdown of year 2000 figures shown on page 18 of Exhibit 320", precisely as first spoken of by Dr. Connell.

I propose to lead Mr. Brown through this table as I advised the Board earlier. Before I do so, I should say that when I made my submission in giving this undertaking, I pointed out that I thought people might be -- the questions and the answers were a little bit passing like ships in the night.

So what I am going to ask you to do, because these figures are not rounded so we don't get different numbers mixed up with other numbers, the netting out in these figures of certain items are all, I believe, clear on this chart and I am basically asking you just with respect to any numbers you have sort of seen that have to do with these columns, forget what you have got written down and I would like you to focus your attention on this set of numbers, and I will just give you an example for instance.

If you look under Column A, the 2,107 figure, and the bottom of Column F, the 3,118 figure, that is the increase in the forecast between '90 and '91 of 1,000 megawatts. It is net of other changes other than all of this discussion about oversized

cogeneration and where that is accounted for.

I think it is fair to say that Mr. Brown, in answering those questions answered them netting out the other changes. And that in approaching it that way for simplicity's sake, the set of numbers that he spoke of, I think, where I immediately saw that ships were passing in the night and why we have ended up with these numbers.

Now, against that background then, I am going to ask Mr. Brown -- I am going to try and ask you to go through this table and confirm, first of all, that the categories down the left side are the same as shown on page 18 of Exhibit 320; that is, the various portions of the NUG plan.

MR. BROWN: Yes, these are the same categories.

MR. B. CAMPBELL: And Column A accurately records the 1990 forecast for the year 2000; is that correct?

MR. BROWN: Yes. I would just point out that in the 1990 plan, the major supply was termed fossil generation at that time.

MR. B. CAMPBELL: Right. And the value though is correct at zero?

MR. BROWN: The value of 2,107 is what it

in Exhibit 83 and also in the Exhibit 320 page 18.

MR. B. CAMPBELL: All right. Now, taking that as a starting point, I gather that in your testimony you dealt with projects that had accepted rate offers.

On Column B, is that a complete list of the items that are included in page 18 of Exhibit 320 that constitute proposed projects with accepted rate offers? That is a breakdown that is behind that page; is that fair?

MR. BROWN: Those are the projects that have been referred to with accepted rate offers, yes.

MR. B. CAMPBELL: All right.

MR. BROWN: And the total being 1,325 megawatts from nine projects.

THE CHAIRMAN: And that is as of today; is that right? Well, I won't -- whatever. At some particular appointment in time, I don't care what it is, I just want to know what it is.

MR. B. CAMPBELL: Exactly as shown on page 18 of Exhibit 320. And we will have to come back to your question, Mr. Chairman.

But I want to tie this exactly to the date of the witness statement. And page 18 of Exhibit 320, I take it, is also based on the same information

as the witness statement; is that correct, Mr. Brown?

MR. BROWN: That is correct.

THE CHAIRMAN: All right.

MR. B. CAMPBELL: All right. And if I read the numbers correctly, looking for instance, at cogeneration industrial, you have got 668 megawatts comprising five projects, the number in bracket bring the number in projects in Column B?

MR. BROWN: That's right. Throughout this exhibit, all numbers in brackets are number of projects.

MR. B. CAMPBELL: All right. Now then, could you explain what Column C is, please?

THE CHAIRMAN: Just hold it a second. There are five industrial projects, one institutional project and two gas compressors -- well, that is right. That is okay. It adds up to eight.

MR. B. CAMPBELL: Could you explain then, please, Mr. Brown, what Column C is?

MR. BROWN: Of the projects that have accepted rate offers, the value in C is that portion which is from thermal matching.

MR. B. CAMPBELL: And, as I understand it, from the column heading, that portion was already reflected in your 1990 forecast?

MR. BROWN: Yes. As you will remember, the 1990 NUG plan and forecast included only thermal matching cogeneration.

MR. B. CAMPBELL: Well, we are going to come back to that a little bit, too.

But now, Column D then, could you explain what that is, please?

MR. BROWN: Column D is a difference between the proposals that we have received and have accepted an offer and the amount of thermal matching. So if you take Column B and subtract C, you will get Column D.

And for example, in the industrial sector, of the 668 megawatts that was proposed to us, 104 was of thermal matching and the difference was 564.

MR. B. CAMPBELL: All right. And I take it from Column E, that over and above this additional gas-fired generation, there were also other changes for the 1991 forecast. And can you just go through those two numbers again, please?

MR. BROWN: When we were developing this, we looked at all technologies and there were two that reflected changes and these are shown on Column E. Municipal solid wastes, because of the ban on MSW incineration, has reduced our forecasts, our

preliminary estimate, as reduced from 116 down to a lower number offset of 62 megawatts. And as mentioned earlier, our hydraulic forecast has come down because of project inactivity and lowered by 81 megawatts.

MR. B. CAMPBELL: All right. I take it that Column F then reflects your preliminary 1991 forecast. Perhaps again you could just go through that.

MR. BROWN: Okay. By taking the 1990 NUG plan values from Column A and adding to it the portion that is in excess of the thermal matching, which is Column D, which totals over 1,100 megawatts, and adding in - in this particular case, subtracting the changes from certain areas of the forecast, we get the preliminary forecast that was used in the supplemental witness statement on page 18.

MR. B. CAMPBELL: All right. Now, having arrived at the preliminary 1991 forecast, the question arose the other day of how much of all of that is the non-preferred component; that is, the non-thermally matched high-efficiency cogeneration?

Could you describe what the figures are in Column G then, please, and go through each of those figures in turn?

[2:43 p.m.]

MR. BROWN: To develop the total amount that is above thermal matching we had to look at what we already have either in the plan or from existing projects either committed or in-service, plus the ones we have with accepted rate offers, which is shown already in Column D, but Column G represents those projects either in-service or committed and industrial cogeneration we already have 84 megawatts above thermal matching.

In the area of wood waste in our evidence we mention the 5:1 ratio of natural gas to wood waste, so in the number 300 in Column F we already knew or expected 250 of that would be from natural gas and the remaining 50 was from wood waste.

The total of those two numbers is 334 megawatts.

MR. B. CAMPBELL: All right. And Column H, now perhaps you could just explain what numbers you've combined there?

MR. BROWN: Okay. In Column H is the final result of the excess capacity and that is from Column D which is from the new proposals that are accepted rate offers, plus that portion that's already in the NUG plan.

And adding those two numbers together in

the cogeneration sector results in 880 megawatts -- 888 I'm sorry, and a total for the entire plan of 1,488 of major supply or non-preferred cogeneration.

MR. B. CAMPBELL: The non-preferred portion of the cogeneration projects?

MR. BROWN: Yes, that's right.

MR. B. CAMPBELL: All right. Now, just let's be -- and for the sake of an absolute completeness here, this all ties to page 18, and go back to the Chairman's question.

As between the time the witness statement was put together and today, I understand that there has been one more accepted rate offer that is not reflected anywhere in these figures; is that correct?

MR. BROWN: That is correct.

MR. B. CAMPBELL: And could you describe that, please, as to what it is and, again, give us the thermally-matched portion of that?

MR. BROWN: There is one project that has accepted a rate offer since this information was put together, it totals 150 megawatts, it is in the area of industrial cogeneration. The amount of thermal matching that we estimated from that proposal was 7 megawatts of that 150.

THE CHAIRMAN: Sorry, 7?

MR. BROWN: Seven megawatts, and 150 was the proposal, which means in Column H that would be increased by 143 if that project is to be added to this table.

MR. B. CAMPBELL: All right. Now, as I understand it, Mr. Brown, that brings us right up to date on this matter?

MR. BROWN: That is correct.

MR. B. CAMPBELL: I think those are all the questions I have on this table.

Thank you, Mr. Chairman. And thank you, Mr. Shepherd, for your indulgence in letting us sort some of this out.

DR. CONNELL: Just one question, Mr. Chairman.

Do I understand that the additional project does not change Column F?

MR. BROWN: It wasn't used in that analysis. It will be put in the next forecast. The preliminary forecast did not have that project in there, so it would be added on.

DR. CONNELL: I see.

THE CHAIRMAN: This should have an exhibit number, I guess; should it not?

MR. B. CAMPBELL: Oh, I'm sorry, I should

have said that, Mr. Chairman. This would be 322.8 which I believe was the undertaking that I gave.

THE CHAIRMAN: Perhaps because it's going to be probably referred to a lot, perhaps it should also have an exhibit number. It's a compliance with an undertaking but...

MR. B. CAMPBELL: That would be fine.

THE CHAIRMAN: Can we give it the next exhibit number?

THE REGISTRAR: 331, Mr. Chairman.

THE CHAIRMAN: Thank you.

---EXHIBIT NO. 331: Response to Undertaking No. 322.8.

MR. BROWN: You may want to correct our new exhibit with the first revision. I've just been pointed out that there is an addition error in Column D. If you add up the cogeneration, 804, to the major supply, 350, I think you will get, with a good calculator, 1,154.

MR. CAMPBELL: Oh, I know what happened. That's my fault. I know what happened. I apologize, he's quite right.

THE CHAIRMAN: I take it you would like us to leave the new 150 megawatt project outside the table rather than make the adjustments in the table

that that would entail; is that right?

MR. BROWN: It's just that all the evidence to date didn't have that in there yet, so...

THE CHAIRMAN: Yes. All right.

Mr. Shepherd.

Q. Mr. Brown, maybe I could just ask you a few questions about this. For the purposes of this discussion, I take it that the total in Column B with this new project is now 1,475 and 10 projects?

MR. BROWN: A. That's correct.

Q. Is that comparable to the 10 projects with 1,200 megawatts before?

A. No, the reference to 10 projects, 1,200 megawatts was made by our chairman at the IPPSO conference and that was the number of projects we expected to sign by year end.

Some of these projects we do not -- in Column B we do not expect to sign by year end, there are some additional projects that are committed that are going to be signed by year end and they're part of this 1,200.

Q. It's hard to keep up with the changes the way things are going; right?

A. I think there's a lot of ships passing in the night, as Mr. Campbell said.

Q. Okay. And then Column C with that change would now be 178; correct?

A. Yes, is increased by 7.

Q. And then Column D with the two changes will now be 1,297, the addition error and the 143?

A. That's correct.

Q. And Column F with the addition of -- I guess you only had 143 to that; correct?

A. Yes, that's correct.

Q. So that's now 3,261?

A. Yes.

Q. And Column H the non-preferred NUGS total is now 1,631?

A. I have 35. The addition of 147?

Q. It's 143; isn't it?

A. Oh, sorry. 143.

Q. So that's 1,631?

A. Correct.

Q. Okay. That whole 1,631 is real projects; isn't it, that you have, actual projects in front of you that you've got rate deals on, or are in-service or committed?

A. 1,631 is all projects that have accepted rate offers, plus those that are in-service or

committed.

Q. Okay. Now, can you tell me how much of your forecast, your 3,261 is natural NUGS?

A. You're referring to the 1990 NUG plan. Natural NUG is a theoretical scenario where NUGS would have developed without Hydro's presence. That number is in the NUG plan, I'm not sure of the number, offhand it's around 250 megawatts.

This is based on the past growth rate that NUGS have developed prior to 1988 over the last thirty years and we would have expected that growth rate to continue if Hydro hadn't been proactively promoting non-utility generation.

Q. Okay. Let's use 250 just for argument sake, okay? Is that okay?

A. Okay.

Q. All right. So, I'm just doing a little math here, tell me whether I've got this right: We take your 3,261, which is the total of Column F, okay?

A. Correct.

Q. And we subtract from that the major supply NUGS included in that, which is 1,631, we get 1,630?

A. That includes the non-preferred

cogeneration as well as major supply.

Q. Understood.

THE CHAIRMAN: I'm off -- I'm sorry. When you're putting in the new figures, are you including this 150 megawatts?

MR. SHEPHERD: Yes.

THE CHAIRMAN: Oh. Well, that makes it -- we should then make the changes because I think it's very hard to follow your figures when you're going through them without doing rapid mental arithmetic faster than I can do.

So why don't we go back.

MR. SHEPHERD: Okay.

THE CHAIRMAN: And put the 150 - if you want to do it this way - put the 150 project in, that means you add it to industrial cogeneration; is that right, at the top?

MR. BROWN: 150 will be added to 668.

THE CHAIRMAN: Making that...?

MR. SHEPHERD: 818.

MR. BROWN: That's correct.

THE CHAIRMAN: And six projects; right?

MR. BROWN: Correct.

THE CHAIRMAN: And then that changes the total down at the bottom.

MR. BROWN: To 1,025, nine projects.

MR. SHEPHERD: Sorry.

MR. CAMPBELL: Isn't that the subtotal line?

THE CHAIRMAN: 10 projects.

MR. CAMPBELL: Just look at the subtotal line.

MR. BROWN: Yes, subtotal is 9 projects, 1,025.

MR. SHEPHERD: Excuse me, isn't that 1,125?

MR. BROWN: My mistake.

THE CHAIRMAN: Right.

MR. BROWN: And the total at the bottom is 10 projects, 18 --

THE CHAIRMAN: 14.

MR. BROWN: 1,475. In Column C, where the 104 will be increased to 111 by increase of 7, the total will go from -- the subtotal will go from 171 to 178, and the total will go as well 171 to 178. In Column D under industrial, the number 564 will go to 707.

If there's no objection, I understand I'm doing my arithmetic right.

The 804 will be increased to 947, and at

the bottom of D the 1,161 is now 1,293.

Column E remains unchanged.

THE CHAIRMAN: What about the 7? Okay. All right.

MR. SHEPHERD: Column D is --

THE CHAIRMAN: All right. All right.

MR. SHEPHERD: Excuse me, Mr. Chairman.

Q. Is Column D not 1,297; are we agreed?

MR. BROWN: A. Right. 1,297 is the bottom of Column D. There was already an error in that number, so it went from 1,154 plus 143 to 1,297. Okay.

And Column E is unchanged. And in Column F add 143 to 814, that's 1,957. The subtotal will change to 2,382 and the total at the bottom will change to 3,261.

Column G is unchanged. In Column H, 648 is changed to 891 -- sorry 791.

[3:00 p.m.]

The subtotal of cogeneration changes from 888 to 1,031, and final subtotal, 1,488, changes to 1,631.

THE CHAIRMAN: All right.

MR. B. CAMPBELL: Now, Mr. Chairman. This can no longer be described as it's described on the paper because it doesn't tie to page 18. So, what,

with the Board's permission, I will do is produce a 331A.

THE CHAIRMAN: I thought, because the first column remains the same, isn't that the only one that's tied to 320-18.

MR. B. CAMPBELL: No, because the 1991 forecast is also shown on page 18 of Exhibit 320, so what I would like to do is we will do a 331A, with the same title as originally filed, and we will do a 331B that sets out all these numbers with the one addition, as we have just gone through them, adding the one additional project. With the Board's indulgence I would like to do that just so that we have something that ties to the supplementary witness statement figures and ones that were shown in the overheads.

THE CHAIRMAN: All right.

MR. B. CAMPBELL: Is that satisfactory?

THE CHAIRMAN: Sure.

MR. B. CAMPBELL: Thank you.

THE CHAIRMAN: Now, Mr. Shepherd, you can go back to your analysis.

MR. SHEPHERD: Okay.

Q. What I want to get to is the total of the preferred NUGs you have according to these numbers you have in place, in-service, committed or rate

offers. Let me just walk you through it and tell me whether I have got this right.

Take the 3,261, which is the total.

MR. BROWN: A. Correct.

Q. Which is the Bottom of Column F. Deduct from it the major supply NUGs, the non-preferred NUGs of 1,631?

A. Yes.

Q. So, now I have got 1,630. I am going to deduct from that the 250 of natural NUGs?

A. That probably wouldn't be done on this calculation. I am not sure where you are leading to but....

Q. Okay. Why wouldn't I deduct 250 of natural NUGs?

A. The natural is only used to identify the program driven or natural load displacement. It is not used in the numbers themselves.

Q. But 250 is included in the 3,261; isn't it?

A. It is our estimate of what would have happened if Hydro hadn't have been around.

Q. All right. Bear with me, let's deduct it, I will explain why in a second.

THE CHAIRMAN: Did you say it's included

in the 3,261, the 250?

MR. BROWN: After we do all our forecasting, we have come up with a new number of 3,261. Now we have to have estimate how much is purchase, how much is load displacement, how much is program driven load displacement and how much is natural because it goes to various users throughout the Corporation. And the natural is what would have happened if Hydro hadn't been around and is really a trend of what has happened for the last 30 years.

THE CHAIRMAN: It would also be a natural element in Column A as well.

MR. BROWN: Yes.

MR. SHEPHERD: Q. It's actually the same 250; isn't it?

MR. BROWN: A. Yes.

Q. Okay. So, if we take the 1,630 we had, we had 3,261, we deducted the non-preferred NUGs to 1,630 net, we deduct the natural we get 1,380. Now you have 1,000 more room; is that right? You have got 1,000 that you still have to get for preferred NUGs; right?

A. That was based on a 3,100 forecast.

Q. But we increased the total, so don't you still have that 1,000 available?

A. Yes, sorry, based on the 3,261.

Q. So, if we take the 1,380, which is the number we just had, and we deduct 1,000, we get 380 left, can you agree that that is the amount of preferred NUGs you currently have as a result of your programs? That's why I deducted the natural.

A. The reason I am hesitant to answer is because I know we have over 700.

Q. Okay. But that would include the 250 though; wouldn't it?

A. That's correct.

Q. Okay. So, we are not that far off; are we?

A. It's close.

Q. So that's the preferred NUGs, 380, 380 megawatts, or something like that. Now we have, and you have just told us that you have in hand 1,631 megawatts of non-preferred NUGs right now; correct?

A. Yes, that's already been deducted.

Q. So my question to you, Mr. Vyrostko, is, aren't you concerned that you have such an imbalance between the preferred NUGs and the non-preferred NUGs in what you have done to date?

MR. VYROSTKO: A. I think that's one of the reasons why we are now looking at our definition of

preferred and non-preferred.

Q. Okay. I guess the question I would ask is, you have used up half, more than half of what you can take over the next 10 years, why did you sign up 1,631 megawatts of straight burning gas?

A. First of all, when we talk about straight burning gas it's in fact a cogeneration project that is not thermally matched to the steam host. So in fact, it's getting more electricity production than the steam requirement.

But again, remembering that our approach was to go after maximum economic non-utility generation and it was to go at it in the preferred areas of cogeneration and renewables, and that's what we have done.

Q. But that isn't what you have got; is it?

A. Well, it is what we have got. It is just that the definition of the true cogen is not quite the high-efficiency cogen that we are going after. We have got different types of cogeneration in there.

Q. I guess it's true, isn't it, that even assuming this 1,000 megawatts is going to be now totally preferred options, the best you can do is half of your forecast will be preferred options; correct,

the very best you can do?

A. It would be based on a new definition of preferred options.

Q. Okay. And in fact, I guess some of that, some of the cogen portion of that won't even be thermally matched; will it?

A. I can't say that. I don't know.

Q. You don't know yet.

By the way, Mr. Brown, you referred a number of times, you used the term "non-preferred cogeneration", as describing Column H, that's not correct; is it?

MR. BROWN: A. There is a portion of major supply in there and there is also a portion of wood waste that uses natural gas.

Q. But I guess what I am asking is, Column H doesn't include one single little bit of cogeneration; does it?

A. No, we have taken the thermal matching out of the proposal and that's what is left.

Q. So, this 1,631 megawatts is a representation of straight burning gas to produce electricity; correct?

A. At different technologies, that's correct.

Q. Okay. One other little clean up point, Mr. Brown. You referred, when we were talking about wind energy you referred to what you called the Can WEA study, or the Can WEA report, you recall, the copy you have of that is actually a draft; isn't it?

A. I wasn't aware of the word "draft" on it. I will are have to find my copy and find out.

Q. So you are not aware of any subsequent draft or final report or what the number is in it?

A. I'm not sure.

Q. Okay. You have undertaken to file what you have though, right?

A. I was actually going to get the original version. I can copy mine if you would rather see mine.

Q. It doesn't matter.

A. It's just you will get my scribblings on it, that's all.

Q. It might be interesting, but no, you can get a clean copy if you wish.

Two other clean up points before I continue on the price issues.

Mr. Chairman, the price issues which I was working on are the last subject that I am going to

deal with today, et al.

Two other just small points. We were talking, Mr. Vyrostko, about the risk off-loading thing just before the break, and I just had one question. My recollection, correct me if I am wrong, is that originally that document had that section called "risk premium"; didn't it?

MR. VYROSTKO: A. I think there was one document, that we actually referred to it as risk premium at one time, that's correct.

Q. Didn't you, in fact, at time say that you would pay a premium where a project off-loaded risk but you wouldn't tell anybody what the amount is because it was so dependent on the project?

A. No, the intent was that we would try to reflect in the project value, one way or the other, of these types of risk areas. And when we first originally looked at it, we were looking at the possibility of some premium, but when we get into putting down the elements, we just couldn't find any way of being able to do that. It became strictly an assessment of the project as opposed to any true evaluation.

Q. But you did publish a document that said you offered a risk premium; didn't you?

A. I'm not sure if we did or not.

Q. But the situation today is, there is no risk premium. There are only reductions in price if there are risk issues; correct?

A. No. This is a risk assessment based on the elements in there. And the whole purpose of that is to try to judge a project based on all of those key parameters in the project.

Typically, all of our NUG proponents are able to satisfy those. And so if a project were not able to do that, then there would be some discounting potentially, of that type of risk.

Q. Okay. Wait a second, am I ready for this yet? Hang on.

Oh, yes. We talked on Wednesday, I guess, a little bit about the municipal utility. I just want to ask you a couple of questions about that before we go back to pricing.

When a municipal utility buys power from an independent producer in their service area, from your point of view, from Ontario Hydro's point of view, that's load displacement; isn't it?

MR. BROWN: A. That's how I treat it in my accounting.

Q. Okay. Are the prices paid by the

municipal utilities the same as the prices paid by Ontario Hydro?

MR. VYROSTKO: A. Not necessarily.

Q. Is there a rate schedule or is there a calculation like your calculation?

A. Not that I am aware of.

Q. Is it fair to say that there are different rules all over the place?

A. In fact, I am just trying to think of how many projects in fact that has happened where the utility has brought from a non-utility generator.

Q. I guess I would be more interested in how many projects couldn't go ahead because the utility wouldn't buy from a non-utility generator.

A. I don't think any of those have not gone forward because the utility would then ask us to in fact negotiate with the developer.

Q. Municipal utilities generally buy their power from Ontario Hydro; right?

A. Yes.

Q. And they get rates that are well below the rates that a normal person pays, they get wholesale rates?

A. They get wholesale rates.

Q. And they are much lower than -- well,

for example, they are lower than your buy-back rates, aren't they, generally?

A. I don't think so.

[3:13 p.m.]

Q. No. Okay. That takes care of that.

Let me come back to pricing issues. I seem to recall reading a number of places that dispatchability is valuable to Ontario Hydro; is that right?

A. That's correct.

Q. And you assume in all your modelling and all your pricing that NUGs are non-dispatchable, correct?

A. That is correct.

Q. If I understand economic dispatch correctly, and we talked about it at length in an earlier panel, your operations people dispatch on the basis of lowest variable cost; correct?

MR. SNELSON: A. Generally, that is correct, yes.

Q. There is some environmental limitations and other things and must-runs?

A. Transmission, transmission constraints and so on.

Q. Right. You are not going to turn the

nuclear station off because it is a pain, but the things like that?

A. No. Joint nuclear stations have been cut back.

Q. Well, they are maneuvered down to 80 per cent, but you don't shut them off, right?

A. They have been taken off.

Q. All right. Okay. Anyway, there's a number of other considerations, but the basic rule is as I have stated it, right, lowest variable cost?

A. Other things being equal.

Q. Okay. So you don't include the fixed costs in that equation; like if you have nuclear with high capital costs, it is going to be dispatched first because it has low variable cost as compared to its total, right, usually?

A. That is correct, yes.

MR. SHEPHERD: Okay. I thought I had another exhibit here, but I don't know where it is. Oh, yes. Sorry, Mr. Chairman, I didn't think I was going to file this, but I guess I am.

THE CHAIRMAN: It will be 331?

THE REGISTRAR: 332.

THE CHAIRMAN: 332, I am sorry.

---EXHIBIT NO. 332: Document precis entitled, "Summary of California Final Standard Offer 4 Qualifying Facility (QF/NUG) Dispatch Policy."

MR. SHEPHERD: I guess I should look what I am asking questions about.

Q. Now, I am not going to ask to you read this through, witnesses. You can read it through later at your leisure if you like. You may wish to read the abstract, this summary in the front, because I just want to raise a concept with you and see what you think of it.

What this is is a summary by Dr. Hamrin of the new dispatch rules that the California PUC has recently introduced with respect to non-utility generators called QFs in California.

As I understand this material, and I am going to invite you to take a look at it later and question my conclusion if you wish, the California PUC has said that utilities must dispatch NUGs just like they dispatch their own facilities; that is, on the basis of lowest variable cost.

Now, just accept that concept for a second and I wonder if you could answer me: If you had a dispatch policy like that and you made all small hydro facilities, say, dispatchable, because of their

low variable costs, wouldn't they always be dispatched first anyway?

MR. SNELSON: A. No.

Q. And why would that not be?

A. Because they have limited amounts of water with hydraulic dispatch. Then the limitation on the availability of water together with the capability of the plant to vary the use of that water leads to it being dispatched to be used at times of greatest value.

Q. Well, of course, that is when it is a peaking facility, right? But if it is a run-of-the-river facility, you don't do that, do you?

A. It depends on -- I mean, peaking and run-of-the-river are not uniquely defined, totally separable concepts. A run-of-the-river facility that is designed for a certain water flow may very well have some capability to store water and release it at a different rate when the water flow is less than the maximum water flow for which it is designed.

Q. Okay.

A. So most hydraulic plants have some capability to schedule water.

Q. I have a small hydro facility that, for whatever reasons, let's say environmental reasons, I don't want to store any water at all ever. The water

either goes through the turbine or it goes over the dam but it has got to go downstream.

That is true run-of-the-river, pure run-of-the-river, right?

A. If in that hypothetical case, yes.

Q. Okay. Now, my variable costs for a facility like that are very low, aren't they?

A. That's correct.

Q. So, if you make me dispatchable, I am dispatched all the time, am I not?

A. It is a trivial question because if you have no control over the water, there is nothing to dispatch.

Q. Well, I mean, I can either put the water through the turbine or over the dam; right?

A. That is correct.

Q. If you want my power, I put it through the turbine?

A. In that the case, you will be the first one that is run. And dispatching, as I say, is a trivial exercise.

Q. Why is dispatching --

A. It is this question of buying the power whenever you have it available; no communication to the control centre is really necessary.

Q. And the reason for that is because whether I am dispatchable or not, I am still the cheapest so you want to buy it anyway; right?

A. Well, all I am saying, it is a chicken and egg situation: On the one hand, you are not dispatchable in the sense that you have no choice but to produce the electricity or to waste it; on the other hand, there is no dispatching decision to be made.

Q. Well, I could say to you, couldn't I, here is a switch, I will install it, turn me on and off any time you like.

A. That is correct.

Q. And if I did that, then you would call me dispatchable; right?

A. Yes.

Q. And dispatchability has value?

A. That form of dispatchability doesn't have much value.

Q. What, being able to turn on and off the power isn't valuable?

A. What is valuable is being able to get the power in increased quantities at the times you need it and in reduced quantities when you don't need it.

Q. Isn't that what I have said? Let's

make it rheostat instead, I don't care.

A. The most economic operation of that plant is to produce the electricity as and when the water flows. There is no decision that has to be made on dispatching. It is strictly, we should buy it whenever you have it available at whatever it is worth to us.

Q. Isn't the result of that that whether you call that small hydro facility dispatchable or non-dispatchable and whether you make it dispatchable or non-dispatchable, you have exactly the same result? You take the power at the same time and you pay the same money for it?

A. That is correct, and it has the same value.

Q. All right.

MR. BROWN: A. I would just like to add that that discussion is on economic dispatch. There are other reasons for dispatching units such as system security for safety. Those may preclude economic dispatch that you were discussing in your hypothetical example.

MR. SNELSON: A. In those circumstances, we do require that we have the control of the switch and that is part of existing NUG contracts.

Q. Okay. Mr. Vyrostko, that control to shut people off for those reasons, that is in the contract, isn't it, already?

MR. VYROSTKO: A. For safety and system reasons, that is correct.

Q. That is called curtailment?

A. No. That is called shutting down for system requirements and safety requirements.

Q. All right. I thought that was the term curtailment. Maybe I misunderstood.

So you have dispatchability for economic dispatch. As Mr. Brown says, there is also something else, another type of dispatchability, but you have that already; right?

A. Yes.

MR. SNELSON: A. Yes. There is a minimum requirement.

Q. And so the only dispatchability that we are talking about left is economic dispatch; right?

MR. VYROSTKO: A. That's correct.

MR. SNELSON: A. Yes.

Q. Is it true in general that economic dispatch favours projects with high capital costs? We tend to dispatch high capital cost projects before low capital cost projects because ...

A. Only to the extent that some technologies that have high capital costs have low fuel costs.

Q. Well, I guess as we discussed earlier, you don't generally build things with high capital costs and high fuel costs, do you?

A. We prefer not to. That is why -- but it is the low fuel cost characteristic that is the characteristic that causes them to be dispatched first.

Q. Is it generally true, Mr. Vyrostko, in your experience that renewable energy - and by this I mean real renewable energy, not preferred NUGs, real renewable energy - one of the characteristics of it is high capital costs and generally lower operating costs?

MR. VYROSTKO: A. Generally speaking, that is correct.

Q. Has Ontario Hydro given any consideration to moving to a dispatchable power regime similar to the one in California?

A. We are looking at the whole spectrum of dispatchability and having that part of the contracts in the future, yes.

Q. Okay. Following up on that, let me just ask you a little bit about load following. As I guess everybody is aware, I have a whole bee in my

bonnet about load following.

Now I can't find it. Maybe I can't ask it -- oh, yes. Why do you have time differentiated rates for independent producers?

A. We have time differentiated rates basically for two reasons: One is, time differentiated rates reflect the cost of operating our system and, therefore, the value that a non-utility generator can have when he generates in the various time periods of the year. And so, therefore, it is a price signal for the NUG developer to generate when energy is most valuable to us.

And the second reason is that the industry was really looking for it because of the problems that they were having with the previous structure we had.

Q. Is it reasonable from your point of view to expect that time differentiated rates will cause some shift of NUG generation from off peak to peak?

A. I think that the price signal would suggest that, yes.

Q. Wouldn't that suggest then that Hydro should, at least to some extent, model non-utility generators as being load following?

MR. SNELSON: A. Perhaps I can answer that, Mr. Shepherd. If and when we have some data as to the degree to which the non-utility generators do produce more during the periods, the peak periods with the higher rates than the off-peak periods, then we will adjust our modelling accordingly.

MR. SHEPHERD: Mr. Chairman, I have about a half an hour more.

Do you want to take a break or do you want me to just go through and finish?

THE CHAIRMAN: I will leave that up to you. If you would like to continue, that is fine with me.

MR. SHEPHERD: I don't mind.

THE CHAIRMAN: How about the panel? Let's go with it.

MR. SHEPHERD: Let's race for the finish.

THE CHAIRMAN: You don't have to hurry.

MR. B. CAMPBELL: Just a minute. Are we then finishing for the day at that point? Is that what is contemplated? If we are going to be going right until 4:30, or was it your plan to go --

THE CHAIRMAN: No. We are going to finish for the day at that point.

MR. B. CAMPBELL: Okay.

MR. SHEPHERD: Q. Mr. Vyrostko, is it true that many projects that are financially sound in the long-term, and I am thinking particularly of capital intensive ones, have problems because the short-term cash flow is negative?

MR. VYROSTKO: A. That has occurred with projects, yes.

Q. Can you explain why that is, why that would happen?

A. Well, typically, many of the projects are high debt finance projects and, therefore, the costs of repaying the debt is a major factor in the project economics.

And depending on how the rates have been designed over the term, what you will have is not enough revenue at the early years when a debt is being repaid, but then as the debt is repaid, you will have more revenue at the far end.

Q. I think you are familiar, Mr. Vyrostko, with the famous Shepherd negative cash flow graph which is the next overhead, which is -- I think it is No. 8, isn't it?

Just to explain how these graphs are done, I know you have seen this sort of graph --

THE CHAIRMAN: What page is this, please?

MR. SHEPHERD: This is page 8 of Exhibit 326, the overheads.

Q. Now, Mr. Vyrostko, is this the sort of thing you were just describing?

[3:30 p.m.]

MR. VYROSTKO: A. That's what I had in mind, yes.

Q. Okay. I should tell you, this is a series of charts and I should tell you that the net revenue line in each of these has the same net present value as calculated by spreadsheet, okay.

Now, if you have a project like this, you have a net revenue line, that's what you pay less the operating expenses; fair? Okay? Will you accept that?

A. We would pay the total revenues.

Q. Yes, okay, but the line on here, net revenues, is what you pay less operating costs. Will you accept that?

A. Okay.

Q. Financing costs typically are constant for twenty or twenty five years; is that correct?

A. Typically.

Q. Okay. So if you have a project like

this, you have the cross-hatched portion which looks like it runs for nine years, that's negative cash flow; right?

A. Yes, it would be considered as negative cash flow.

Q. And everything that is below the net revenue line and above the financing box, all that stuff on the right at the bottom, that big area, that's all profit; isn't it, the way this is structured?

A. That's right. If you take out all of the costs of the operation out of that, then that's what would be left, it would be profits.

Q. So a project like this that is described by this graph, there's lots of profit in; isn't there?

A. Looks like there is in this one, yes.

Q. Well, we'll get to the other ones, we'll see whether it's really as good as it looks.

Is it fair to say that a project like this because of the negative cash flow is not likely to get off the ground?

A. No, in fact, because of the way we negotiate we have different elements to help that project go forward.

We not only have it for under 5 megawatts

where there's no negotiations but levelized rates, but we also have it with over 5 megawatts with our front-end loading.

So through negotiations we, in fact, would get around that problem.

Q. Okay. I'm going to get to that in a second. But assuming that you can't do that, assuming they have to take the escalating rate, it's going to be pretty hard to finance a project that has nine years of negative cash flow; isn't it, in your experience?

A. I can't really answer that because it depends on who is financing the project.

Q. All right. Now, when you provide levelized rates or front-end loading, you consider that financial assistance you're giving to independent producers; correct?

A. In some cases.

Q. Isn't it called a financial assistance program?

A. Depends on how much front-end loading we do, it would be financial assistance.

Q. Okay. So if you could take a look at the next overhead, which is No. 9, and this is page 9 of Exhibit 326 and, Mr. Vyrostko, is it correct that your rules with respect to front-end loading and

levelization require that the levelization or front-end loading be self-correcting by the end of twenty years; correct?

A. That's a general principle that we follow, yes.

Q. Okay. So then what we have done here is, we have changed the net revenue number so that now it's levelized over the first twenty years, same net present value, okay, and after deducting expenses, isn't it fair to say that, at least in some cases with a capital intensive project, all that levelization does is it means instead of having nine years of negative cash flow you have twenty years of negative cash flow?

Remember our net revenue lines here are identical in net present value, and I've used your levelization method.

MR. SNELSON: A. Mr. Shepherd, can you just clarify for me is this intended to be an hydraulic example?

Q. Yes.

DR. CONNELL: Mr. Shepherd, could you clarify for me whether you've included in your financing costs the costs of the negative cash flow?

MR. SHEPHERD: No, that would exacerbate the problem, Dr. Connell.

MR. VYROSTKO: I guess one of the things that I don't understand on this second chart is our levelized rate, especially when we're dealing with larger projects, is always greater than the financing costs.

We have the guaranteed payment or the front-end loading rate that we have, and that rate typically would be equal to or greater than the financing.

MR. SHEPHERD: Q. Well, surely that's only true if the project is economic; right, that is, it's only true if within the first twenty years the net present value is enough to cover everything; right?

If you have a project that has high capital costs, in this example we've got the capital costs of $2,800 a kilowatt, your levelized rate isn't going to cover it; is it?

MR. BROWN: A. One of the things here I'm not too comfortable with is a twenty year loan. Hydraulic facilities showing this kind of cash flow, I'd certainly want to buy it, but above that I think they can get longer term financing.

Q. And what would it be, 25?

A. No, I think we've seen in excess of 30.

Q. Of course -- and I'm happy to recalculate this with 30, but isn't it true that because of the nature of amortization it makes very little difference to your annual payments whether you take it twenty or thirty years; right, we're talking about a small amount?

A. There is definitely changes and it would be lower than the numbers shown here.

Q. Okay. Just out of curiosity, you levelize for a maximum of twenty years; right, or front-end load for a maximum of twenty years?

MR. VYROSTKO: A. We would front-end load, so that general principle is that we would then cross over after twenty years.

Q. So, at the end of twenty years any levelization has, in effect, been paid back or any front-end loading has, in effect, been paid back?

A. No, not that it has been paid back, it's just that the rate that we are paying at the twentieth year would be equal to the rate of the project.

Q. The escalating rate?

A. The escalator rate. So we pay higher at the beginning, we'll pay lower at the end and the cross-over takes place around twenty years.

Q. So at twenty years there's no deficit, there's no levelization deficit?

A. No, there may be a deficit.

Q. Well, how could your rate be the same as the escalating rate after twenty years and you'd have a deficit -- and you wouldn't have -- sorry, and you would have a deficit. Where are you going to get the deficit back?

A. In the latter years.

Q. If your rate is the same as the escalating rate, you're not getting anything back; are you?

MR. BROWN: A. This applies to a guaranteed payment where we have a fixed amount every month and it's quite possible that because of hydraulic conditions he's not performing as much as we expected and a deficit could grow after twenty years and there will be some repayment after the twenty year period for the guaranteed payment.

Q. Fair enough, but we weren't talking about a guaranteed payment; were we, we were talking about levelization?

A. Those are intermixed when it comes to hydraulic projects.

Q. Can we forget the guaranteed payment

and just talk about a levelized rate. In a levelized rate the end of year twenty the developer doesn't owe you anything; right?

MR. VYROSTKO: A. Let me try to understand your scenario here in sort of the way we deal with it.

If, in fact, you have a set of cash flows, as you're suggesting on your curve, and that would be the typical cash flow stream for the project, if we were, in fact, going to do any front-end loading, the cash stream would not look like that, what we would do then is change the whole stream such that you would maybe flatten out the curve such that you're paying more at the front end and less at the back end, the total value of the project is the same, okay, but the actual cash streams per year would be different.

Q. But you won't flatten it out after year twenty; right, the year twenty --

A. No, I just said that. We do flatten it out for the whole period, so that the total net present value of the project, or the total value of the project is the same, but if you're paying more in the front end you're going to pay less at the back end to get the total -- the same value.

Q. So you'll, in effect, levelize right

to the end of the project life?

A. I didn't say we would levelize totally, but what I'm saying though is that if we levelize at the front end we're going to pay less than the actual rate at the back end because you can't levelize at the front end and continue with the same rate at the back end--

Q. Of course not.

A. --because you're paying more then for the whole project, so you've got to pay less.

Q. And there is no twenty year cut-off point; that's what I want to make clear?

A. The twenty year cut off is where the rate, the actual rate that you pay is -- they equalize. The first twenty years the rate you pay is greater than the rate you should be paying; the last how many years, the rate that you pay is less than the rate you would be paying.

Q. And that would mean; wouldn't it, that you're levelizing over fifty years?

A. Well --

Q. Just math.

A. But all of our rights are, in essence, levelized because if you take any project, what you do is you determine what the net present value

of the project is on a twenty year project, you bring it back to today's dollars and then you escalate it, and it varies with time based on the value of that project relative to the avoided cost of any one given year, so...

Q. This rule or guideline or policy of allowing front loading or levelization to continue beyond twenty years, when was that instituted?

A. Beyond twenty years. As I mentioned, our guideline says that the rate that we pay on the levelized rate should equal what we call the normalized rate, which is a typical rate -- your curve shows the normalized rate.

The two rates should be equal around twenty years. So, therefore, there is opportunities in the latter part of the project to pay back what the front-end portion has paid back.

Q. And what I'm asking is: When was that rule introduced? Remember, Mr. Vyrostko, I sat across the table and negotiated from your people, I know what was done. When was that rule introduced?

A. A couple of years ago.

Q. When you pay a levelized rate, the effect is -- let's say you're talking about year one, all right, your normal escalating rate would be, let's

say 5 cents, and you offer a levelized rate of 7 cents say, okay?

A. Okay.

Q. The 2 cent difference, your formula - correct me if I'm wrong - your formula treats that as, in effect, money you've advanced to the project; correct?

A. In essence that's correct.

Q. And so you have an advance that's building up over time as long as your levelized rate is higher than your escalating rate; correct?

A. That's correct.

Q. As I understand what you're saying - correct me if I'm wrong - by year twenty the escalating rate and the levelized rate have to be the same?

A. That's correct.

Q. Which means that for the whole first twenty years you're advancing money to the proponent; correct?

A. That's correct.

Q. So at the end of twenty years the proponent owes you a lot of money?

A. Depends on the project and how much of that has been done. Yes, that could be true.

Q. Okay. And then over the next twenty

or thirty years you have it paid back?

A. Yes, that's correct.

Q. Okay. And you, in fact, signed contracts like that; have you?

A. We have signed contract that, in fact, have levelized rates, yes.

Q. No, levelized that long?

A. I don't believe so.

Q. What's the longest period in a signed contract, or committed -- yes, signed contract that -- let me put this another way.

There's a point in time after year twenty; isn't there, where you have been paid back all of the levelization; correct?

A. That's correct.

Q. Okay. Say, year fifty or so because you're accumulating interest on that as well; right?

[3:45 p.m.]

A. I don't believe so.

Q. You don't do it on a present value basis?

A. I don't believe so.

Q. Maybe I could ask Mr. Snelson this.

Mr. Snelson, avoided costs require that you present value the stream of payment; don't they?

MR. SNELSON: A. Yes, they do.

Q. And whether you use levelized or escalating, the present value has to be the same; correct?

A. That is the normal expectation, yes.

Q. And when you present value, isn't the effect of that to include an interest factor in the timing of payments?

A. Present value accounts for the interest, the effect of interest.

Q. So, when I ask Mr. Vyrostko, does the levelization formula have the effect of adding interest on the advances, the way you do avoided costs, that would have to be the case; wouldn't it?

A. My understanding of how he would do his levelization is that he would want the present value of the levelized rate to be less than or equal to the present value of avoided cost, and that process does not explicitly add interest to the advances. But the effects of interest are accounted for through the present valuing process.

Q. It would being the same as if you calculated it with interest; wouldn't it?

A. It would be double counting to adding interest as well.

Q. I am talking about instead of using discounted net present value, you just took the annual differential and you made it an interest bearing account requiring interest to be paid on it, then over time the total amount of payments would be the same; wouldn't it?

A. That's not the way it's done. The present value technique is used for a different purpose.

Q. All right. So, at some point you were paid off, and let's say this is year forty or year fifty, we will call that the - I don't know - the final payment date, okay? What is the longest final payment date you have in a current contract, Mr. Vyrostko?

MR. VYROSTKO: A. Before I answer that question, there is a couple -- I think we are possibly getting mislead here, maybe you and I both with regard to the term "levelized rate".

Typically, when we negotiate projects, when we talk about front-end loading or levelizing the rate, it's not a flat rate. So, in essence, all we are doing is we are changing the slope slightly to help the financing.

So, in fact it's not a significant impact like you would suggest that shows up here on this

curve. So, I just wanted to make sure that we are clear, it's not a flat rate where there the front end is very high compared to the normalized, and the back end is very low.

Q. Okay.

A. And the question was?

Q. What is the longest final payment date in a contract you have?

A. Well, the payments would be for the entire duration of the contract.

Q. But we defined final payment date, we defined that to be the point in time in which you have been paid off all your levelization.

A. Offhand I don't know that.

Q. You say twenty years sounds about right?

A. It could be more, it could be less. I don't know, I really don't.

Q. All right. Your levelization period for under 5 megawatts facilities is ten years; correct?

A. That's correct.

Q. That's ten years until the final payment date; right? The way we have defined it, at the end of ten years the amount that you advanced in the first few years has been paid back?

A. That's correct.

Q. Ten years?

A. That's correct.

Q. And any project under 5 megawatts that wants longer than ten years in levelization has to then go through the whole negotiating process; correct?

A. That's correct.

Q. All right. In the under 5 megawatt category most of the projects are run-of-the-river small hydro; is that fair?

A. That's fair.

Q. Okay. Is it fair to say that the actual accounting costs to Ontario Hydro of an Ontario Hydro-owned facility, that's what is referred to as accounting unit energy costs, AUEC, are the costs on which customer rates are set; is that true?

MR. SNELSON: A. Generally true, yes.

Q. In capital intensive projects, is it correct to say that accounting unit energy costs tend to be higher in the early years and they drop and then they rise later within inflation as operating costs go up; isn't that true as a general rule?

A. Yes, I believe that's the picture that was shown in Panel 3 and the proper chapter, Chapter 6 of Exhibit 3.

Q. And if you actually netted out operating costs, because remember we are using net revenue numbers, right, so if you net out operating costs, is it fair to say that accounting unit energy costs are a gentle downward slope over time?

A. The financing component of accounting unit energy cost is a downward sloping function over time.

Q. And that's really, aside from your variables, the costs of a capital intensive facility are just depreciation and interest basically; isn't that true?

A. There is fuel and OM&A.

Q. And fuel and OM&A of course are variables, variable costs?

A. They are variable costs.

Q. Okay.

A. There are deviations to that downward sloping trend due to major rehabilitations which become capitalized at the time when major rehabilitation takes place.

Q. Naturally. I am just trying to simplify. Get through it faster.

I would like to show you then the last overhead, which is page 10 of Exhibit 326. Now you

will recall, Mr. Vyrostko, that I advised you, and you are welcome to check this, that the net revenue number in each of these three exhibits is the same net present value. This net revenue number has been calculated using the same shape, if you like, as your accounting unit energy costs. Is it correct to say that if you paid, let's say, the small hydro facility, this hypothetical small Hydro utility, in the same way that you account for your own costs of your own stations, that that station that we already saw was not viable now is viable?

A. I don't know, Mr. Shepherd, how you can say that this is the accounting unit energy cost shape of an Ontario Hydro station, not knowing what assumptions are in it.

Q. I would be happy to provide you with the spreadsheet. But you did agree that the fixed component, that is the net revenue component in this example, is a gentle downward slope; didn't you?

A. The financing component.

Q. The fixed cost component; is that fair?

A. The part that is there to pay off capital charges, interest and depreciation, provided there are no major rehabilitations or continuing

expenses that are capitalized.

Q. Maybe the easiest way to deal with this is, I will be happy to provide you with the spreadsheet and you can check for yourself whether it's calculated correctly.

Assuming for the purposes of discussion, and subject to check, that this is calculated correctly, isn't it true that by doing this, you end up allowing a project to proceed that on the other structures can't proceed, Mr. Vyrostko?

MR. B. CAMPBELL: Mr. Chairman, implicit in my friend's question is that the other projects couldn't proceed, and I thought Mr. Vyrostko had testified clearly that the whole idea of levelization and guaranteed payment was that this shaded area that's shown on the previous graph wouldn't occur.

If we are simply dealing with Mr. Shepherd's hypothetical, fine, but I think that should be clear, in my submission.

MR. SHEPHERD: That's all we are dealing with, is the hypothetical, Mr. Chairman.

MR. VYROSTKO: According to the chart there, it's a viable project.

MR. SHEPHERD: Q. Okay. Is it generally true with marginal capital intensive projects that if

you paid on the basis of the same shape as accounting unit energy costs, the same way as you charge out your own facilities, that marginal capital intensive projects, more of them would be viable?

MR. VYROSTKO: A. I have never done that study to determine that.

Q. You have no way of knowing that?

A. I do not.

Q. Is it true, isn't it, that you treat everything that is more front loaded than escalating rates as being financial assistance, as being something you are providing a benefit you are providing to the producer; right?

A. I wouldn't necessarily consider it -- call it a benefit.

I think what we do, when we negotiate the rates, we try to match our rate, our cash stream back to the proponent to suit the economics of the project, as the proponent has identified them to us. And so we could structure the rate in different ways to help with the key elements of that project.

Q. Your benchmark, though, the place you start from is not the same cost that you have for your facilities?

A. I don't know what our costs are for

our facilities. I just know what avoided costs are for the project.

Q. Okay. I just have a couple of other short subjects. Can you explain the concept of simultaneous buy/sell?

A. Simultaneous buy/sell, in my view, is where a customer continues to buy electricity from a utility, while at the same time generating electricity for sale back to the utility.

Q. Okay. I am having a hard time with a couple of interrogatories, so perhaps you could help me out. Maybe could you turn to 5.14.163.

THE REGISTRAR: That will be 321.30.

---EXHIBIT NO. 321.30: Interrogatory No. 5.14.163.

MR. SHEPHERD: Q. And is says in that interrogatory, Mr. Vyrostko:

> Hydro's current policy does not allow for the simultaneous buying and selling of power. Hydro will only purchase net power.

That's your policy on simultaneous buy/sell currently; isn't it?

MR. VYROSTKO: A. That's correct.

Q. Okay. I thought I had that down pat and then I looked at 5.14.51.

THE REGISTRAR: That's 321.31.

THE CHAIRMAN: Thank you.

---EXHIBIT NO. 321.31: Interrogatory No. 5.14.51.

MR. SHEPHERD: Q. There it says, about the fifth line from the bottom, after describing the policy against simultaneous buy/sell, it says:

> However, the electricity displaced would have a value to Hydro based on avoided cost. When the project avoided cost is greater than Hydro's lost revenue, Hydro would see a net benefit and would share the benefit with the customer.

So, if there is a difference you will just pay them; is that right?

MR. VYROSTKO: A. It is possible.

Q. Doesn't that have the same effect as simultaneous buy/sell?

A. Yes.

Q. So, my question here then is: What is all the fuss about? I don't understand why there would be a problem then with simultaneous buy/sell?

A. I guess no one has said there is a problem. Our current policy is that we buy net power.

One of the issues with simultaneous

buy/sell is the perceived discrimination for load displacement projects. And by our policy turning around and saying that no, we will in fact provide a payment if necessary to pay a load displacement project full avoided cost, we get around the perceived discrimination with buy/sell.

Q. Does this operate like a demand management program, that is you pay whatever you think they need to do it?

A. No, it depends on what the value of the project is based on avoided costs.

Q. But you will pay, like any other project, you will pay up to full avoided cost?

A. That's correct.

[4:00 p.m]

Q. Didn't I hear you say somewhere that you were in the midst of developing a policy on simultaneous buy/sell?

A. We are, in fact, currently looking at simultaneous buy/sell as a direction, yes.

Q. Why would you have to do that if you have already solved the problem?

A. One of the things that I said in my direct evidence is trying to be flexible and responsive to the industry. And there may be opportunities where

it is in the best interests of the customer to consider simultaneous buy/sell and I would like to be in a position to be able to offer that if it makes sense to both the customer and Ontario Hydro.

Q. Okay. I have two other areas quickly. The first is: Mr. Vyrostko, do you know what a favoured nation clause is?

A. I ever heard the term.

Q. Would it be fair to say that in the independent power context what that means is a contract term saying that if Hydro changes the general rules for all developers, whether it is in price or in anything else, the developer with an earlier contract gets the benefit of that change; is that correct?

A. I am not aware of that.

Q. Does that describe how you understand what a favoured nation clause is?

A. I am not familiar that much with that clause to say that I understand it that way.

Q. Well, let me use some specific examples. It is true, isn't it, that many developers have asked Hydro for a clause stating that if the final determination, say in these hearings, is that the calculation of avoided cost was incorrect or inappropriate and as a result should be higher, the

rate on their contracts should be recalculated to reflect that? It has been requested by a number of people, correct?

A. There have been some people who have asked whether that could be considered.

Q. And you have always said no?

A. We have tended to say no, that is correct.

Q. Well, have you said yes?

A. To opening the price of a contract, no, we have not.

Q. Okay. And why won't you do that?

A. Because we believe that when a deal is struck, it is struck fairly between two parties who entered into that deal willingly and when they signed the contract, it was good for each of them respectively.

Q. Okay. Isn't it true that if it were determined subsequently that the basis of your price calculation was wrong - let's just say it was determined it was wrong as opposed to debatable - surely the result is then that the pioneers, the people in the industry first in Ontario, are paid less than the fair value for their power; isn't that right?

A. Again, I guess I am not sure if I

would see it that way. At the time when it was put together, it was a fair value perceived by both parties to be a fair value. And so, I would think that based on that, that that would be a commitment that we would have to honour.

Q. Is it fair to say that in the last couple of years you have seen quite a number of particularly small hydro projects deferred awaiting the outcome of these hearings and other actions to see what would happen to the price?

A. That was discussed probably two years ago, but in the last year and a half, no, we have not seen that at all.

Q. You don't think that is happening?

A. No, I don't believe so.

Q. Mr. Brown, you are finding, aren't you, that quite a lot of small hydro projects that were active are now no longer active?

MR. BROWN: A. That evidence was in regard to environmental processes.

Q. Okay. But it is true that a lot of active projects are now inactive?

A. That is true.

Q. Okay. And you think it is because of environmental reasons?

A. That is what the industry has told us.

Q. Now, there is another type of favoured nation clause that is sometimes called a most favoured nation clause and I am not going to ask to you define that obviously, but let's just hypothesize a clause that says, if Hydro gives a better deal to any other developer on any issue, it has to offer that to the developer that has that clause in their contract, the other developer?

THE CHAIRMAN: That is the same, isn't it, as the one you have just described?

MR. SHEPHERD: No, it isn't, Mr. Chairman.

THE CHAIRMAN: They will match it, they will match the price?

MR. SHEPHERD: No.

THE CHAIRMAN: What is the difference between what you say is a favoured nation clause and the most favoured nation clause?

MR. SHEPHERD: A favoured nation clause says that you get any changes in the general rules applicable to everybody.

A most favoured nation clause says if you give a deal to one person, you have to offer it to

everybody.

THE CHAIRMAN: Oh, I see, all right.

MR. SHEPHERD: Q. Let me just give you an example. If you refuse to take a gas price risk on a project in 1988 - you just said, we don't take gas price risk, all right - and then your policy changes or you like another project more and you say in 1990, okay, we will take 50 per cent of your gas price risk; in a most favoured nation clause, you would have to go back to the first developer and say, okay, we will take that risk, right, at whatever the value is?

MR. VYROSTKO: A. Based on the definition that you provided, that would happen.

Q. Now, you won't do that, will you?

A. First of all, I am not aware of the word the most favoured nation clause, so I am not sure how that operates; and secondly, it is again because we have struck a deal that that has been fair, I don't see why we would want to go back.

Q. If a developer A comes in today and you make a deal to take some risk, let's say gas price, and then tomorrow another developer, developer B, comes in, you won't necessarily tell developer B that gas prices is a risk you will take, will you?

A. No, I will not.

Q. And, in fact, in order to find out what you will do, what your rules are, the developer has to give you a whole shopping list and see what you will take, right?

A. In fact, I believe that most of our rules are set out through our request for proposal or in our illustrative rate package that we have talked about. So in terms of the types of programs that we have got, they are pretty well there.

Q. Well, the nine risks -- there are nine risks that you will take, right? They are not written down anywhere, are they?

A. I don't know. Are there nine risks?

Q. Well, I am asking you, you are the witness.

A. I am not aware of nine risks.

Q. There is a number of risks, whatever it is; they are not written down anywhere, are they?

A. No. What we have is we have a set of guidelines that we negotiate projects within and those guidelines talk about the type of project, the avoided costs, the various financial assistance programs that we have got. And what it does is set sort of the overall parameters within which a project can be negotiated and that is the guidelines for all of the

coordinators.

Q. Okay. And those, of course, are not published because you don't want the developers to know what the negotiating guidelines are, right?

A. Some of the guidelines may not be published, that is correct.

Q. So this sort of example that you could give a deal to developer A and developer B would never know that a term was available, that can happen, can't it?

A. That is possible, yes.

Q. Okay. The last thing is, you have referred quite a number of times to competitive bidding.

Can you just tell us what competitive bidding is and how it works?

A. Competitive bidding, in my perspective, is a process, what I call a discipline process, of actively seeking projects by a utility typically that would in that process identify the amount of megawatts they are looking for. They would talk about the timing necessary for them and they would then specify various parameters by which the projects will be judged.

And the competitive bidding process part

of that is that the developers will bid based on those various parameters for either the most technically viable or the most economic project depending on where the weighting is given on those two.

Q. Earlier you contrasted competitive bidding with standard offer contracts.

Are they different things?

A. Typically, they are.

Q. Isn't it true that many of the jurisdictions in the United States that have competitive bidding also have standard offer contracts as part of their competitive bidding process?

A. I am not aware of that.

Q. Let me step back. I should have asked this question first.

You have testified that you think the time is getting there that you should be doing competitive bidding, right?

A. I think there are a number of indicators suggesting that we should be looking at it, that is correct.

Q. So presumably, you studied the issue?

A. No.

Q. Well, how did you form the conclusion?

A. Based on some of the key things that we believe are necessary to look at competitive bidding, like a mature industry.

Q. Don't you have to look at what has happened with competitive bidding, what other people have done, before you form conclusions of whether you should do it?

A. Oh, we have done that.

Q. Okay. You have looked at the various -- I think there is, what, 36 jurisdictions in the United States that have competitive bidding?

A. My information says 36 either have or are in the process of putting together competitive bidding.

Q. That is fair. And you are aware, I guess, of the many studies in the U.S. that have concluded that competitive bidding is inherently biased against renewable energy; is that correct?

A. No. The studies that I have say that competitive bidding is the preferred way of going for projects.

Q. So are you familiar with the National Independent Energy Producer's study on competitive bidding?

A. Their recent one?

Q. Yes.

A. Yes, I am.

Q. And does that study conclude that competitive bidding is inherently biased against a renewable energy project?

A. I don't recall that element of their study.

MR. BROWN: A. The competitive bidding process could be fully biased to renewable if that is one of your criteria.

Q. Sorry? I didn't understand that.

A. Mr. Vyrostko mentioned various parameters used in competitive bidding. The assumption is it is always economic. You could put a bid together that has a parameter that has renewables, so ...

Q. In fact, we are seeing in some areas of the United States renewables only bidding, aren't we? Isn't that what New York is doing?

A. California is one of them as well, I believe, that has a specifically renewable bid.

Q. In effect, the sort of thing that you are thinking of right now is preferred projects only bidding, right?

A. We haven't --

THE CHAIRMAN: I don't think he said

that, but maybe he would agree, I don't know. He didn't say that.

MR. SHEPHERD: Well, maybe I could rephrase that.

Q. You have said that major supply NUGs, non-preferred NUGs, are no longer going to compete head to head with preferred NUGs, correct?

MR. VYROSTKO: A. We haven't said that as well. There may be a situation where that, in fact, might happen.

Right now what we are saying is that we forecast approximately 3100 megawatts of non-utility generation and we believe that we can get that 3100 from renewables and high-efficiency cogen.

If that were not to happen, if for some reason we couldn't be able to get that, then we would be looking at going out after other types of non-utility generation.

Q. Okay. But your current plan right now is you have got this 1,000 megawatt block?

A. Yes.

Q. And that is reserved now for preferred projects, correct?

A. That is correct.

Q. So if you have competitive bidding,

there is going to be no non-preferred projects in there, are there?

A. If we were going to go after bidding within the 1,000 megawatts, it would probably be bidding with preferred projects.

Q. Okay. And, in fact, if you did bidding with non-preferred projects, don't I understand your evidence to be that you are comparing those to something entirely different; you are comparing them to a hydro-owned similar facility?

A. That is correct.

Q. So you would bid to replace the hydro facility, correct?

A. That again hasn't been decided, but that is a possibility.

Q. Okay. It is true, isn't it, that in some areas of the United States competitive bidding has been coupled with automatic environmental adders?

A. There are cases where that has happened, yes.

Q. So for example, in California, you have a small hydro project bids 3 cents and a cogenerator bids 5 cents; the small hydro wins but gets paid 7 cents, right, roughly, because of adders?

A. I am not familiar with all of the

details of that one.

Q. It is the concept though, isn't it?

A. There are different concepts with payment like that.

Q. Have you looked at any of those things here?

A. That would be part of our evaluation of how we proceed with competitive bidding.

[4:15 p.m.]

Q. All right. And you talk about competitive bidding as a series of criteria, but usually competitive bidding is price bidding; isn't it, mainly price bidding?

A. No. In fact I think, going back to the study you were referring to, the recommendation is now that bidding become part of a competitive negotiation process where you've used the bidding to select various proponents and then you would negotiate from there.

So I think there's all kinds of variables in competitive bidding, whether it's price alone, whether it's technical, whether it's environmental, or a combination of all of them.

Q. You can, in fact, have competitive bidding where the main criterion was environmental;

couldn't you?

A. It's a possibility.

Q. In fact, that's something that is being tried in the United States; isn't it?

A. That's correct.

Q. And I guess that's something that you'll consider when you look at competitive bidding for Ontario Hydro?

A. We would be looking at all of those elements.

Q. But haven't you said that you don't pay extra for environmental benefits, is that not your evidence, over and above regulations?

A. I guess -- I don't believe I said that. I believe I said that our avoided costs and, therefore, the rate we pay generators do reflect environmental considerations.

Q. In the 10 per cent preference premium?

A. In there and within the avoided cost for the costs of environmental requirements for our own plants.

MR. SHEPHERD: I have no further questions, Mr. Chairman. I'm sorry I went on so long.

THE CHAIRMAN: Thank you, Mr. Shepherd.

We will adjourn now until tomorrow morning at ten o'clock.

THE REGISTRAR: This hearing will adjourn until ten o'clock tomorrow morning.

---Whereupon the hearing was adjourned at 4:20 p.m., to be reconvened on Wednesday, October 9th, 1991, commencing at 10:00 a.m.

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